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INSTITUTIONS

OF THE

PRACTICE OF MEDICINE.

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NORTH COLLEGE-STREET, EDINBURGH. }

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THE
INSTITUTIONS
OF THE
PRACTICE OF MEDICINE;

DELIVERED
IN
A COURSE OF LECTURES,
BY
JO. BAPTIST BURSERIUS,
DE KANIFELD.

TRANSLATED FROM THE LATIN,
By WILLIAM CULLEN BROWN,
EXTRAORDINARY MEMBER, AND ONE OF THE ANNUAL PRESIDENTS OF
THE ROYAL MEDICAL SOCIETY OF EDINBURGH.

IN FIVE VOLUMES.

VOL. IV.



EDINBURGH:

PRINTED FOR CADELL & DAVIES, STRAND, LONDON;

SOLD ALSO BY

W. CREECH, BELL & BRADFUTE, P. HILL, W. LAING, MANNERS & MILLER,
J. GUTHRIE, AND J. FAIRBAIRN, EDINBURGH;—DUNLOP & WIL-
SON, AND BRASH & REID, GLASGOW.

1802.

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OF
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ERRATA.

- Pag.* 197. *lin.* 11. *for* laterally *read* latterly
244. 1. *transfer the comma after* removed *to* thence,
255. 9. *for* surface *read* head
268. 23. *for* opisthonos *read* opisthotonos
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THE
AUTHOR'S PREFACE.

IN the former Volumes I have embraced the whole class of fevers, together with the febrile exanthematic diseases. I now proceed to the explanation of the diseases of particular parts, especially internal parts, beginning with those of the head. For many reasons, I have preferred to every other arrangement, however specious and ingenious, that which the nature and seat of the complaint, the injury sustained by the functions, the connection of the parts, and the first view of the disease itself, point out ;— regardless of the censure, or reproaches, of those who may exclaim against my following the common and ancient method, notwithstanding the great variety of those of late introduced into the Schools by the Nosologists of our own times. But if there be any fault in this, I hope that they will readily forgive me, on

my candidly acknowledging that I am not naturally inclined to be much captivated by mere novelty. For I am not in the practice, as is commonly done, of searching after what is merely new, but what is just, right, and recommends itself by being attended with solid advantage. I admire the labours of Nosologists in endeavouring, after the example of Botanical classification, to arrange diseases into orders, genera, and species; nor would I wish to deprive their works of the praise due to them, on account of their greatly assisting the memory, both in the naming of diseases, and in forming the diagnoses of them. But all the systems which have been hitherto framed, however elaborate, are liable to nearly the same objections which have been brought against those of the Botanists. And, to say nothing of the barbarousness of the new terms, which have been adopted, as well as the arbitrary rejection of those long established, what confusion and deviation from received doctrines are the consequence, and in what darkness does the subject still continue to be involved! The most remarkable and frequent consequence is, that diseases, which are widely different from

one another, are collected together, and, contrary to the intention of nature, forced into the same class: while others, which are by nature nearly allied, and, as it were, bound together, in compliance with their arbitrary system, are, with great absurdity, separated from one another. I shall illustrate this by a few examples, to put it in a clearer point of view. Sagar, in the second edition of his system, lately published, makes his *Thirteenth Class* to consist of those diseases which, after Sauvages, whose example he follows, he denominates *Vesaniæ*. In *Order I.* of this Class he places the *Hallucinationes*, a term perfectly new and unheard of. To these are referred various kinds of diseases, namely, *vertigo*, *suffusion*, or *cataract*, *diplopia*, or double vision, *syngismus*, or tinnitus aurium, *hypochondriasis*, and *somnambulism*. Who does not at a single glance perceive the very wide difference which subsists between vertigo and cataract, between tinnitus aurium and double vision, and between hypochondriasis and somnambulism? Every novice in medicine, however slightly acquainted with pathology, must be capable of forming a

judgment on this point. In *Order II.* of the same Class he places his *Morositates*, a term of disease equally new, and hitherto wholly unknown to physicians. Among the morositates he classes *pica*, *bulimia*, *polydipsia*, *antipathia*, or aversion, *nostalgia*, or the desire of returning home, *panophobia*, or terror during sleep, *satyriasis*, or an erection of the penis attended with a furious venereal desire, *nymphomania*, or furor uterinus, *tarantismus*, *hydrophobia*, and, lastly, *rabies*. The consequence of such a classification is, that terror during sleep is confounded with satyriasis, nostalgia with furor uterinus, tarantismus with hydrophobia, thirst, morbidly increased appetite, and canine madness;—diseases which, if I mistake not, differ as widely from one another as it is possible to conceive. Such are the incongruities, and such are the *vesaniæ* and *hallucinationes* of the new system ! But as I have already shewn that this arrangement unites together diseases so opposite in their nature, it will be proper to adduce an instance from the same author of those which, although nearly allied, from the fault of the same system are improperly disjointed. In *Order I.* Class *XI.* in which he has

brought together the *inflammations*, or *phlegmasiæ*, are enumerated the *phlegmasiæ musculosæ*, namely, *phlegmon*, or inflammatory swelling, *cynanche*, *myosotis*, and *carditis*. In Order II. are enumerated the *phlegmasiæ membranaceæ*, namely, *phrenitis*, *diaphragmatis*, *pleuritis*, *gastritis*, *enteritis*, *epiploitis*, *cystitis*, &c. In these two Orders only the true and legitimate, or phlegmonic, *cynanche*, or angina, and *pleuritis*, are ranked. Hence the other genera, or species, of these two complaints, as the spurious, catarrhal, ulcerous, gangrenous, convulsive, and paralytic angina, &c. as also the rheumatic, putrid, bilious *pleuritis*, and the species named *verminosa*, &c. although, with regard to the seat of the complaint, and the similarity of the symptoms, nearly connected together, by this system are preposterously separated, most of them being referred to other classes. Who can vindicate the propriety of this, or affirm that it is calculated either for the advantage of the student, or convenience of the practitioner? It would be irksome to point out all the absurdities of these systems of Nosology. It will be sufficient to adduce

another example of the almost endless varieties of species which are proposed and injudiciously multiplied by some authors. Those, in particular, seem to be superfluous which are derived from some slight accessory symptom being present. Such authors, likewise, as consider every symptom as a disease, seem to labour under an egregious error. Yawning, stretching, and febrile shivering, are looked upon by them in the light of so many diseases; and thus do they unprofitably augment, *ad infinitum*, the number, not only of the genera, but also that of the species of diseases. I therefore beg leave to call the reader's attention to what has been observed by Ludwig, independent of any opinion I may entertain. After reviewing the system of Nosology published by Sagar, he remarks: " If I may be allowed to give my opinion of this work, as well as of that of Sauvages, and every other composed after the same plan; I am sensible of the extreme difficulty of such an undertaking, and of the vast pains which have been bestowed upon it, particularly by Sauvages in the composition of his Nosology: I must confess, however, that these very nice divisions of symptoms create more confusion

than they afford light ; and that such systems appear to me to be altogether void of any true foundation of division *.” Thaer approaches nearly to the same opinion which Ludwig entertains, affirming that those authors, who construct their divisions of diseases from their symptoms, generally deviate widely from the truth : because the same disease, proceeding from the same cause, varies exceedingly according to the diversity of the patient’s constitution, age, manner of living, and the method of cure employed, in like manner assuming different symptoms ; while, on the other hand, diseases, which are completely different from one another, in many symptoms frequently agree ; and therefore, if merely on account of the agreement of the symptoms they be comprehended under the same species and name, very opposite affections must necessarily be confounded †. For which reasons it appeared better to arrange the diseases of particular parts according to their local situation. For every one of

* *Comment. de Reb. in Med. et Scient. Nat. gest.* vol. xviii. P. 3. p. 451.

† *De Act. Syst. Nerv. in Febr.* § 2. p. 5. not. a & b.

them discovers itself, not only to the patient, but also to the physician, by the diminished, morbid, or defective action of some part. In my opinion, the physician will be better enabled to ascertain under what kind of disease a person labours, by having explained, one after another, the particular diseases in which such a morbid action takes place, and by the symptoms being pointed out by which the different kinds of injuries are manifested, than by the species and varieties of diseases being sparsely enumerated, or by being obliged to search for them in various parts, or classes, of a work, distant from each other. I have also thought proper rather to describe than define diseases, on account of their proximate causes being generally unknown, in consequence of which, according to Zimmerman *, Locke †, and Nietch ‡, they are more properly derived from their phenomena than their essence. I have admitted very few species and varieties, that I might not be guilty of the same fault which I have condemned in others; and such

* Zimmerman *On Experience*.

† *On the Human Understanding*.

‡ *Pathologia, &c.*

as I have set down are generally taken from evident causes, a practice which I find approved by other authors of great reputation *. But although I have been very sparing in establishing genera, species, and varieties, I understand that there are some idle people, incapable of any labour themselves, who are perpetually and loudly exclaiming that the acquisition of our art ought still to be shortened and expedited, which they allege has not been done by the numerous divisions, varieties, precepts, and cautions, with which these INSTITUTIONS seem to abound: nay, that students, in consequence of the variety and difficulty of the subjects which occur, are deterred from the pursuit of the science, and almost brought to despair of ever attaining a competent knowledge of it. They affirm, moreover, that all these minutiae are superfluous, on account of many physicians having acquired honour, wealth, and celebrity, without their aid. But such persons as start these objections, in fact, by grasping at too much, gain nothing at all. I have made a point of rejecting too numerous or nice distinctions and varieties, or

* Zimmerm. l. c. p. 302.

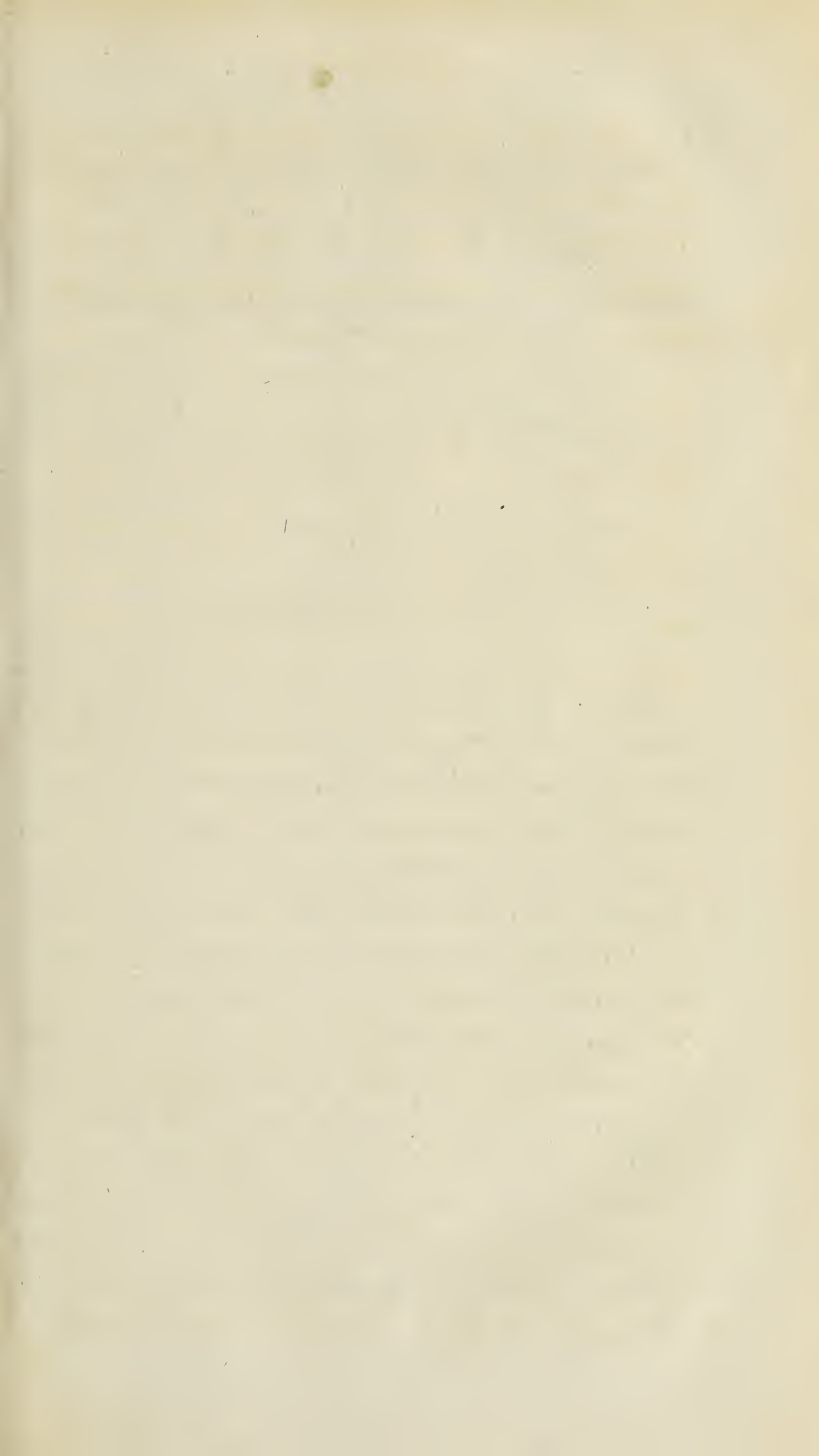
such as do not correspond with the nature of the diseases ; which is so certain a fact, that if they be compared with those of some Nosologists, the injustice of the charge will at once appear. With regard to a few necessary distinctions, which I have put down for the sake of understanding the subject more clearly, and which I always took care to demonstrate in the patients themselves to my pupils, so long as I continued in the Clinical Chair of the Hospital at Pavia, who can oppose or reject them, as without such aid no Art nor Science can ever exist or be taught ? I confess that for these, and many other reasons, Medicine is a Science the knowledge of which it is very difficult to acquire. But will it become more readily understood by omitting those things which appear to be so intimately interwoven, and almost co-existent with it ? Will it not rather be rendered mutilated, imperfect, and nugatory ? In the other Sciences no one has either omitted, or considered it as proper to omit, the necessary opinions, divisions, subdivisions, and varieties, which flow from the subject. Shall orators and naturalists, shall botanists and chemists, be allowed to employ them, and shall medicine alone be denied this

privilege? If the study of Medicine is not to be facilitated by neglecting these things, and by a scanty selection of precepts, how otherwise is it to be promoted? In spite of the objections of these self-sufficient critics, the study of Medicine cannot be facilitated and simplified in any other way than by adopting a neat, perspicuous, and convenient arrangement in the explanation of the science; by previously establishing clear, distinct, and adequate ideas of every particular; by giving as full a history as possible of the several diseases; by avoiding hypotheses and speculative opinions; by throwing out doubtful, uncertain, and controverted points, if they cannot be elucidated, or by separating them from such facts as are certain and demonstrated; by remarking the facts and observations of every age; by distinguishing one disease from another; and by noticing their different species, varieties, and degrees; by pointing out the symptoms by which the presence of diseases may be ascertained, and their approach foretold, and those, not of a general nature, but such as are peculiar to every complaint; and, lastly, by giving an ample method of cure, calculated to the varie-

ties and causes of complaints, to the season, to their degree of violence, to the climate, and to the patient's age, sex, and temperament, which cannot be done without employing many precepts, exceptions, and cautions. Thus the difficulties and obstacles with which the science is surrounded, and by which its study is rendered difficult and tedious, are obviated, and almost made to disappear. All this I have endeavoured to execute according to my ability. It is not for me to say whether I have attained my object: I leave this to the decision, either of such as have been long engaged in practice, or of those students who commence practice for the first time after quitting the University. The former set will at once ascertain whether I have all along followed nature, and regulated every thing by the test of experience; the latter will perceive whether or not my descriptions agree in all respects with what they discover to occur in their patients, and whether or not they derive any benefit from them in dubious cases. I prefer abiding by the decision of either of these sets of readers. Let others depreciate and reject my labours, if they please. Let them, as

usual, search after Compendis, Manuals, and Compilations, in which they will find both the principal genera of diseases briefly described, and some general methods of cure, frequently empirical, which may be easily read and understood, even by such as have not been regularly educated in the study of Medicine. Let them next, without any labour or study, set up for physicians; at first sight confidently determining the nature of diseases reduced to a few heads; disregarding the manifold variety of causes, and not losing time in the careful examination of them; snatching at any one which first offers itself to them, and supporting it, when once conceived, with all imaginary obstinacy. Trusting like mountebanks to their nostrums and antidotes, let them promise health to all who apply to them. In one word, let them make experiments at the expence of their patients lives. And if, in consequence of this compendious method of dispatching business, they should commit any very gross error in ascertaining a disease, as afterwards appears on dissection, or if the event should declare the falsity of their prognosis with regard to life or death, —which frequently happens,—let them not

despond, but proceed boldly to affirm that they have shortened and facilitated the study of Medicine ! For my own part, I shall rest satisfied with a few judicious readers, anxiously engaged in the pursuit of truth ; who are well aware that a knowledge of the Science cannot be acquired without constant, and almost indefatigable labour ; and that a person can have no pretensions to it without having previously exercised the deepest reflection, and bestowed the closest attention, upon diseases at the patient's bed-side.



PART I.

CHAPTER I.

OF THE HEADACH.

I. **I**N treating of the diseases which occupy particular seats, especially internal ones, I shall commence with the head, the supreme and noblest part of the body, in which the mind and its faculties appear to reside. Among the diseases to which it is liable, the first that offers itself is the *pain*, which properly belongs to the faculty of sensation. It is not uniformly defined in the same manner; although, in my opinion, those authors seem to be in the right, who consider it “as a distressing sensation, which the mind perceives in such a manner as to refer it to a part of the body which suffers unusual violence from any cause, whether external or internal*.” That pain, therefore, which in a particular manner is referable to the

head, may be defined to be, a certain uneasy and unusual perception of heaviness, pungency, distention, compression, throbbing, or some other disagreeable sensation affecting the whole head, or a part of it. This perception corresponds with a particular, unknown change, eluding the senses, impressed on the *sensorium commune* by some power, and which at times is so violent, inherent, and permanent, that even after it has ceased, or the cause has been removed, the idea, or image of the pain, whatever part it had occupied, may remain, and be perceived by the mind, as is felt in particular by people after the amputation of any of their limbs †.

* Caldan, *Instit. Pathol.* c. xxi. § 304. † *Id. ibid.* § 36. p. 232. and Van Swieten, in *Aphor. Boerhaav. De Cogn. et Cur. Morb.* § 220.

2. Hence, according to the nature of that *sensation* (par. 1.), the pain of the head is either *obtuse* and *heavy*, or *lancinating* and *pungent*, or *distracting*, or *oppressive*, or *throbbing*, or *rending*, and so forth. Moreover, if the pain be recent, or occasioned by evident causes, though not too violent, it is generally named *cephalalgia*; if inveterate and obstinate, *cephalæa*; if it affects one side of the head only, *hemicrania*; lastly, it is named *continued*, or *periodical*, according as it constantly distresses the patient, or recurs at stated periods, ceasing altogether, or remitting during corresponding intervals. There is also a pain which

is confined to a particular spot, about the size of an egg, when it is sometimes named *ovum* ; but it is called *clavus*, when the pain is intolerable, occupying a much smaller space, and causing the idea of a sharp nail being forced deep into the brain : and as this last species of pain frequently affects hysterical women, it is therefore commonly named *clavus hystericus*.

3. As the pain affects sometimes the internal, sometimes the external parts of the head, it is very properly divided into *internal* and *external* ; between which it is of the greatest consequence to be able to distinguish accurately. For observation has shewn, that its cause is not always situate in the head, but sometimes in other distant parts of the body, by consent with which the head is affected. According, therefore, as the headach is occasioned in one or other way, another division of it arises, namely, into *idiopathic*, and *sympathic*. Some authors also, besides these distinctions, have framed others, according to the variety of its origin and causes. Hence it is not improperly distinguished into *protopathic*, or primary, *deutero-pathic*, or secondary, into *symptomatic*, *febrile*, *inflammatory*, *sanguineous*, *bilious*, *phlegmatic*, *rheumatic*, *catarrhal*, *arthritic*, *scorbutic*, *venereal*, *hypochondriacal*, *hysterical*, and *convulsive*, and, lastly, by Ettmuller, into *warm* and *cold* ; although most of these may be in some measure referred to the former ones.

4. To the immediate causes of headach belongs, whatever presses upon, distracts, compresses, erodes, or in any other way irritates and injures the parts, whether internal or external, which are endowed with the faculty of sensation. Under this head comes, too violent motion, or excessive quantity, or congestion of the blood, distending the vessels, and sometimes the cellular membrane, and other receptacles of the common integuments, of the muscles, of the aponeuroses, and of the pericranium, externally, and of the meninges and brain, internally ; an accumulation of serum, particularly that which is acrid, or its being suddenly effused in considerable quantity within the membranes and ventricles ; inflammation ; erysipelas ; a scorbutic, venereal, phlegmatic, arthritic, or rheumatic depravation of the fluids ; herpetic, scabby, variolous, and other kinds of acrimony ; the virus of the *plica polonica*, especially when forced in, or retained* ; various metastases ; tumours ; abscesses ; exostoses ; topi ; caries ; a mal-conformation of the cranium itself ; induration, or ossification, of the dura mater ; bony scales, or hard, sharp-pointed warts arising in its processes ; little stony concretions formed in some part ; the want of the usual sutures ; any kind of spasms which retard the free circulation of the fluids, and the like, which both by immediately and remotely compressing nervous and sensible parts, or by irritating and

convulsing them, may excite the pain in various ways.

* Although in the *plica polonica* the hairs become very much injured, and run together in a horrible manner, still I do not class this disease among the diseases of the head, because it appears to me to belong to the universal diseases, and to a particular kind of cachexy. Many authors have given a very accurate description of the *plica polonica*, but particularly Saxonia, *Tract. de Plic.* Sennert, *Oper.* T. iii p. 849. *Ephemerid. N. C. Dec. 1. an. 6.* p. 190. Saillant, *Mem. Hist. sur la malad. singuliere de la Veuve Melin lû a la Facul. de Med. de Paris au prima mensis de Fevrier.* 1776. But the chief of them is Vicat, the latest writer on the subject, whose pamphlet, entitled *De la Plique Polonique*, published at Lausanne in 1775, appears to be highly worthy of perusal.

† The celebrated Haller, from the testimony and experience of several physicians of undoubted authority, observes: “ Most dreadful headaches have been observed to arise from the cortical part of the brain being in a state of inflammation; from an effusion of blood in the brain; from a fungous excrescence under the cranium; from grumous blood compressing the *corpus striatum* and *corpus callosum*; from a scirrhus gland in the falciform process; from a collection of blood in the anterior ventricle; from a calculus in the pineal gland; from a scirrhus in the cerebellum; from a hard body pressing upon the corpus callosum; from a putrid or ichorous taint, or abscess, of the brain; from serum stagnating in the ventricles, and conjoined with corruption of the brain, or a scirrhus tumor; from some sharp substance lurking in the brain; from a worm being contained in the cerebellum; from an abscess in the cerebellum; from ossification of the carotids, and concretions formed in them; and, lastly, from the blood alone, by means of the cold bath, being forced to the head. *Elem. Physlog.* T. iv. lib. x. sect. vii. § 20.

5. Such are the principal causes (4.) which accurate dissection has repeatedly discovered and recorded. Not a few eminent physicians, however, are of opinion, that the blood is formed into polypi in the sinuses of the dura mater, opposing the free circulation of the fluids, retarding the return by the veins, and thus occasioning the pain in the head. Which in fact does not appear improbable, especially in those persons in whom a mal-conformation, and too great laxity of the sinuses suffers the motion of the blood to become so sluggish, that the fibrous part, and that which is more disposed to concrete, separates from the other constituent parts of the blood, and, according to its nature, gradually becomes compacted. But I consider it as being a very doubtful question, when such polypi are found on dissection, whether they existed before death, or are the consequence of it. When they exist in fact before death, they contend that the pain then stretches along the longitudinal sinus. But Morgagni, for whose judgment I entertain the highest respect, suspects that not unfrequently the most obstinate periodical headaches, of the species named *cephalæa* and *hemicrania*, which yield to no remedies, are to be derived from mal-conformations, and particularly from a bony induration of the dura mater, and its appendages*.

* *De Sed. et Caus. Morb. Epist. i. n. ii.*

6. Among the causes of headach must like-

wife be enumerated, worms nestling in the brain. But Morgagni rejects this opinion as being erroneous *. For he believes that it is impossible to discover them in the brain, unless they have passed into it from without ; nor does he think that worms, or the smoke of tobacco, and snuff, can at all penetrate into the cavity of the cranium, unless in consequence of a passage being formed by an ulcer in the nares, or bones of the skull ; which seems quite consistent with reason. But since some eminent physiologists, on the most minute examination, have detected living animalcules in the brain of brute animals, in hydatids, and various viscera, it is the part of a prudent person to suspend his judgment until time shall have thrown more light on the subject.

* L. c. n. 9.

7. I do not deny, that frequently the cavities of the nose and frontal sinuses, and other parts lying under the skin, are infested with worms, which either secretly find their way thither, or are produced from eggs being deposited there, and which, by corroding the parts, sometimes occasion the most excruciating pain, baffling every remedy, and generally not ceasing before they are ejected from their lurking-places. The subjects of this complaint are particularly those who are exposed to various kinds of flies, especially

ox-flies and horse-flies, and perhaps also butter-flies, and cannot at all times guard against the attacks of such enemies, while they sleep in the open fields, or meadows. For upon those occasions the animalcules lay their eggs in the nostrils, or near them, from which the recent insects are hatched, or they deposit the worms themselves,—for some of them are really viviparous,—or they are drawn in along with the breath, and are nourished and grow up in their concealment. Likewise the eggs of insects, which have been deposited in flowers, by smelling them incautiously, may be drawn into the nostrils, and hatched there. Instances of this kind are to be found in Fernelius *, Trincavelli †, Rolfinck ‡, and other careful observers ||. Nay, it sometimes happens, that even lumbrici creep up to the nostrils, and settling there occasion a headach §.

* Pathol. lib. v. c. 7. † Lib. ix. c. 4. ‡ *De Dolorē Capit.*

|| In particular may be consulted an account published by Wohlfart, in the year 1768, entitled, *Observatio de Vermibus per Nares Excretis*, in which he mentions worms having been seen both by himself and others. For he relates, that they were passed from the left nostril of a man of sixty-seven years of age, who had been much tormented for eight days with an obstinate headach and swelling of the left side of the head, which had been preceded for three days by a constant epistaxis. The discharge of them, which took place to the extent of nineteen, all of them white, was attended with relief to the patient. Being inclosed in a glass vessel containing earth, in a few days they passed into blackish, hard canker-worms, and, at the

expiry of a month, produced flies, with darkish brown eyes, and very delicate *antennæ*; their body was intersected in eleven different places; and in their head they had two angular, black, and moveable hooks, by means of which, while they endeavour to drag the posterior part of the body in creeping, they strengthen their head, and at other times retract them in such a manner as to conceal them intirely. In the last intersection there was a depression with two marks, and the surface of the body was intirely covered with black, short hairs, thinly scattered. But the author is of opinion that they were generated in this patient, “in consequence of some fly having deposited its eggs in the mucus accidentally hanging from the nose, which being retracted along with the mucus, and cherished in the frontal sinuses, hatched the worms.” *Comment. de Reb. in scient. Nat. et Med. gest.* vol. xvii. p. 159. *et seqq.* Razou makes a similar observation, which may be seen in his *Tabulæ Nosologicae*, p. 265. In the Edinburgh Medical and Philosophical Commentaries, also, we are informed by Hill and Monro of worms like *scolependrae*, an inch and an half long, having been excreted from the nose. A few years ago, Gelmetti, the first physician in Mantua, who had studied the Practice under myself in the Hospital at Pavia, communicated to me the history of an excruciating pain in the head, which was at length removed by the discharge of three little worms. These worms, however, were not passed from the nostrils, but from a small tumour which had gradually arisen at the apex of the nose. A racking pain had first been felt in the forehead, from whence it had passed to the root of the nose, and a small tumour having at length broken out, as I have already said, and from which worms were discharged, it intirely disappeared. After they had been kept for some days in a glass, to undergo their transformation, as he pursued the study of Natural History with great eagerness, he was highly delighted to find them changed into black flies, of a large size, such as are observed to infest horses.

§ In Bartholin is to be seen the first epistle of Langelotte,

in which the following history is detailed. "A country-woman, after having been long afflicted with dreadful headaches, which at length increased to such a height, as to force her to run about like one distracted, came to the clergyman of the parish of Neukirchen, then celebrated among the peasantry for his skill in diseases, and who has not been long dead. He immediately administered the sternutatory which he had been accustomed to employ in headaches, by which her head being violently shaken, one worm was displaced, and compelled to pass out at the nostril; in consequence of which the rending headach immediately subsided." The worm was as long as the middle-finger. *Epist. Medicinal. Cent. 2. Ep. lxxiv.*—Saltzman makes mention of a violent hemicrania, which continued almost a year, accompanied with a spasmodic contraction of the eye-brow, occasioned by a worm lurking in the frontal sinus, and which immediately ceased on the worm's being discharged. *De Verm. e narib. Excussio, § v.*—My former pupil David Buzz, who now practises with great success in his native country, has communicated a similar case to me. A country-man labouring under a very distressing hemicrania, had been treated with a great variety of remedies to no purpose, but was at length restored to perfect health in consequence of a worm, of the species of the *lumbrici teretes*, having been discharged from the nose.

8. Hitherto enough has been said of the more obscure causes of the complaint. It remains for me to give a brief enumeration of these which are more remote and manifest. They are generally considered as being the suppression of usual evacuations of blood; the intermitting of venesection in those who have been accustomed to it; ulcers being imprudently dried up; the abuse of fermented liquors; insolation; heat; cold; wind; the prevalence of the south winds; re-

pletion ; crudities in the *primæ viæ* ; lumbrici and other species of worms settling in the stomach or intestines, hypochondriasis, or hysteria ; pungent, or heavy smells ; excessive sensibility of the nerves, as it is called * ; hard riding along rough roads ; a blow, or fall ; contusions ; and so forth.

* Balloni had already recognised this as one of the causes ; for, according to Bonetus, in his *Epit.* (2a epid. p. 162.), he observes : “ Certain pains arise from acuteness of sensation, as some people are very liable to fainting, owing to excessive sensibility.”

THE DIAGNOSIS.

9. THE external parts are known to be affected, if the hair becomes hard as it were, and the pain is aggravated merely by touching it, or compressing the skin ; if any redness or swelling are observable, while the functions of the brain are little, or not at all, affected. On the other hand, it appears to be situate within the skull by the presence of the opposite marks ; particularly when the pain is attended with mental stupor, dimness of sight, tinnitus aurium, dulness of hearing, or when every kind of noise causes uneasiness ; nay, according to GALEN, the pain then stretches all the way to the roots of the eyes. The voice also sometimes becomes interrupted without any evident cause ; the deglutition is affected ; the muscles of the neck and jaws are contracted and

painful ; the limbs are seized with shaking ; the head is distressed with frequent vertigo, and, if the disease is very violent, vomiting, or a desire to vomit, and delirium, at length come on. Sometimes such is the injury sustained by the internal parts, that it is propagated to the retina and choroid coat, the eyes becoming very impatient of light, and extremely painful, or, being suffused with redness, they swell *, and water.

* The eyes at times become so inflamed and swelled from this cause, as to put on the appearance of ophthalmia, and that too of the primary kind, which will appear from the following case. An unmarried lady, of twenty-five years of age, who dwelled hard by St Francis's Chapel in Fayence, in the month of November, ann. 1752, was attacked with a very acute pain, which affected the whole left side of her head, and she continued to be tormented with it for almost fifteen whole days, without applying for medical assistance. She was at length obliged to call a physician, when her left eye had become red and swelled in consequence of ophthalmia, without being accompanied with any remission of the complaint, but, on the contrary, the disease having increased to such a pitch within a few days, that the whole external surface of the eyelids and neighbouring parts was raised into a great, red, and painful tumour. Likewise her whole cheek was swelled, and was all over suffused with a red colour, leaving a white mark when pressed with one's finger. A person would have pronounced it to be an erysipelatous inflammation. There was present a very violent fever, attended with the greatest restlessness and anxiety. But the palpebræ were so shut in consequence of the swelling and inflammation, as to completely conceal the ball of the eye. Immediately the method of treatment which is calculated for the greater inflammations was employed, and the mildest emollients were applied externally.

A few days afterwards, however, the inflammation was succeeded by suppuration, and, an abscess at the external angle of the eye bursting spontaneously, it was found to contain much very fetid pus, which was poured out in great quantity, not only from the cavity of the orbit, and surrounding parts of the eye, but also from the greater part of the cheek, when they were pressed. Hence the swelling of the palpebræ and neighbouring parts in a short time subsided, so as to admit of the eye being again seen and examined. The whole adnata then appeared very red, and so much swelled as to rise above the surface of the cornea, in the same manner as takes place in *chemosis*. The Cornea notwithstanding retained its shining appearance and pellucidity. But the pupil was larger than usual, as happens in *mydriasis*, and that eye had completely lost its sight. On the fourth day after the bursting of the abscess, a violent and universal distension of the nerves came on, which was shortly after succeeded by palsy of all the limbs, accompanied with complete loss of sense, languid, irregular breathing, attended with snoring, a small intermitting and defective pulse, and thus in a very short period the patient breathed her last. Twenty-four hours after death, the head was opened, when the whole adipose and cellular membrane, which extends under the skin to the eye-brows, orbit, and cheek, all the way to the lower jaw, was found destroyed; and, in place of it, the space between the ball of the eye and its muscles, and the bottom of the orbit itself, full of true and very fetid pus. The eye alone seemed uninjured, as well as the fluids contained in it. On the brain being laid bare, the anterior left lobe, all the way to the ventricle, appeared in a great measure destroyed in consequence of suppuration having taken place. The suppuration surrounded the whole optic nerve, without the nerve itself shewing any injury, either externally or internally; and it communicated without the hollow of the orbit. Dallarmi and Laurence Benedictus, who were at that time clinical students, were present at the dissection.

10. Sometimes the pain, although it is situate

internally, extends not only to the eyes, but likewise to other external parts, on account of the *dura mater*, when the principal cause of the pain is contained in it, although it seems to be void of sense, through the pericranium and blood-vessels having a connection with the external parts of the head, or on account of these last being drawn into consent by means of the nerves. If the sense of pain is felt deeper, it generally implies that the brain, and particularly the medullary portion of it, are affected; nor is it absurd to suppose that in this case the *pia mater*, which stretches under the lateral and other ventricles of the brain and its base, is very much affected *, provided the seat of the pain is not supposed to be it, but the white and medullary part of the brain, compressed, and otherwise irritated by it. And hence it will not be a matter of great surprise if the pain sometimes likewise proceeds to the crown of the head, because the brain, which is distended in all directions, may be likewise pressed against the vertex, or because the *pia mater*, which stretches along to that part, injures the medulla of the brain there, and so gives rise to a similar painful sensation in it.

* Morgagni, l. c. Epist. 1. n. 7.

II. But it is of consequence to distinguish the different causes from which the pain arises. I shall, therefore, with all manner of care, enumerate the symptoms peculiar to each of them.

And, first, it appears that the complaint is occasioned by the blood, from plethora being present ; from the turgescence of the veins and arteries ; from the great, full, violent, or sometimes suppressed pulse ; from the heat about the forehead ; from the throbbing of the temporal arteries ; from the *tiinnitus aurium* ; from the impatience of light ; from the redness of the face or eyes ; from the sanguine temperament ; from the patient's youth ; from hemorrhages * ; and from causes which have increased the quantity of the blood, or quickened its motion and impetus to the head †.

* Vandermond, *Recueil d'Observations*, &c. vol. viii. p. 275.

† I do not here speak of the pain which accompanies inflammation. For I shall more properly treat of the inflammatory headach, and point out its symptoms, when I come to discuss the subject of *cephalitis* and *phrenitis*.

12. The pain arising from the serum or phlegm, generally occurs in those who are of a phlegmatic temperament, of a cachectic and wan habit, and people in old age and in childhood ; and it is preceded by the causes which occasion a superabundance of watery and pituitous fluid. In this case the face is pale and swelled ; the veins subside ; the limbs become yellow and cold ; no heat nor pulsation can be perceived ; there is a propensity to sleep, which symptoms are generally preceded by torpor, vertigo, insensibility, and deep sleep. But in particular there is pre-

sent a catarrh, by which the pituitary membrane and other parts are affected.

13. We are told by Dolæus, that this pain (12.) is accompanied with a sense of heaviness, or weight, together with sluggishness and stupor of mind: while, if it is occasioned by the bilious humour, that it is very acute, nay lancing, and attended with remarkable heat. Morgagni in some measure agrees with Dolæus when he inquires into the cause both of the acute and obtuse pain. For although he explains the matter somewhat differently, he acquiesces in opinion with him when he supposes that, if in the side affected with the pain the ventricle is filled with pure, insipid water, a more obtuse pain arises, although all the cavities be filled; while, if it abounds with impure, acrid, or saltish water, an acute one is the consequence. For, in the opinion of this philosopher, mere plenitude does not always appear capable of exciting acute pain, unless to the fulness be added acrimony of the fluid, or it be of such a nature as on suddenly arising immediately causes a violent separation and dilaceration of the parts. Hence at least it appears highly probable, that an acute and pungent pain, in whatever part it occurs, is generally occasioned by an acrid and pungent fluid; and that a dull and obtuse one proceeds from a watery, or viscid, but insipid humour.

* L. c.

14. We may suspect the presence of worms and little insects, if the pain continues fixed and obstinate at the root of the nose, where it is joined to the forehead, or where one or other frontal sinus is situate, and resists every remedy employed; if the patient is affected with frequent sneezing; if the nostrils are dry, or only one or other is unusually moist; if they are itchy; if a fetid smell proceeds from them, or from the mouth, and vertigo occasionally recurs*. But it is frequently a more proper and almost peculiar symptom of the pain's arising from this cause, that it is conjoined with a sense of gnawing, and that of an animal crawling in the brain.

* Vogel, *Acad. Praelect. de Cogn. et Cur. Morb.* § 420.

15. Sympathetic headach is occasioned by injuries done to other parts. It very frequently originates in the stomach, or even in the uterus. That which arises from the stomach rather occupies the fore-part of the head. It generally commences with crudities in the *primæ viæ*, or after eating, or a surfeit; and is accompanied with nausea; a bitter taste in the mouth; vomiting of a viscid, acrid, acid, or bilious matter; pains of the stomach or intestines; flatulency; eructation, and other marks of the presence of indigestion. Those who labour under headach from this cause are generally relieved, as I have already said, by the accession of vomiting, or

diarrhœa, which do not afford any relief in the idiopathic complaint. It generally affects people when fasting ; but in that case it is allayed, or even intirely removed, by taking food, by which the spasmodic affection of the stomach is overcome, or its acrid, irritating cause corrected. But it may be understood that lumbrici, and other kinds of worms, from which the sympathetic headach not unfrequently proceeds, are lurking in the intestines, from the presence of the symptoms peculiar to them, which have already been enumerated *.

* See the last Vol. Chap. Of Worms.

16. The headach which arises from the uterus being affected, is felt more in the crown and back-part of the head, and occasions a sense of cold there *. It generally supervenes on the suppression, or difficult discharge of the catamenia, and hysteria ; and it differs little from that one which proceeds from an affection of the inferior viscera of the abdomen, or from black bile, or excessive sensibility, or ataxia, of the nerves, attacking hypochondriacal and nervous people. This pain is generally accompanied with spasmodic affections of other parts, and particularly coldness of the lower extremities : and it is almost invariably allayed by external pressure, in consequence of the feeling of the nerves being either blunted, or altogether interrupted by it.

* Baglivi, *Prax. Med.* l. 1. *De Doloze in genere*, p. 65.

17. Under this head frequently seem to fall (15. 16.) the species of headach named *hemicrania*, *ovum*, or *clavus hystericus*. The *hemicrania* generally comes and goes periodically, like a quotidian and tertian intermittent. Hence some name it a *disguised*, or *topical intermitting fever*. It commonly begins at sun-rise, is aggravated at noon, remitting and altogether ceasing at sun-set. It is, therefore, by some likewise named *morbus solaris*. It sometimes performs its course in the evening, or at night; but this rarely happens. A very rare case of the complaint was observed by Petrus Salius Diverfus, a celebrated physician of Fayence. It was that of an *hemicrania* returning periodically every eighth day, with which a priest belonging to the order of St Domenico had been sadly afflicted for no less than *three years and seven months* *. A person would have pronounced it to be perfectly similar to an *octan* intermittent of long continuance, of which mention has already been made †. Sometimes, however, *hemicrania* is caused by an arthritic taint, or by a collection of blood in the frontal sinuses; but in that case it has not such manifest and uniform courses; and moreover symptoms of these diseases are not wanting. Thus likewise it will not be attended with great difficulty to distinguish the *symptomatic* or *secondary* headach, in the same manner as an

inflammatory, febrile, scorbutic, or venereal one, from other species of the complaint, if we carefully inquire into the primary affection, from which it derives its origin, and detect it by its symptoms.

* *Annotat. in lib. Altomari*, cap. xii. p. 394. where the author gives an account of the case : his words are, “ A clergyman for three years and seven months suffered an hemicrania in the right side of the head, accompanied with a severe and acute pain about the temporal muscle, which uniformly returned every Monday almost always at the same hour. The exacerbation continued twenty-eight, or thirty hours at most, during which he could neither view the light, nor hear any noise, without manifest distress, nor could he taste food. After this time had elapsed, he became perfectly well, and performed all the functions, both natural and animal, properly.”

† Vol. i. par. 65.

18. It is evidently much more difficult to know when such a pain proceeds from some organic affection (4. 5.). However, the duration of the disease, and no relief being received from the remedies employed, with the symptoms enumerated in par. 9. and 10. and the absence of those which I have detailed from par. 8. to 16. render our conjecture highly probable. I discovered a cyst, full of pus, about the size of a pigeon's egg, covered with a pretty firm and thick membrane, situate in the right lobe of the brain, under the parietal bone, where it is joined to the temporal bone, in a very strong man, who, for some months, had been dreadfully tor-

mented with a most excruciating pain in that part, and which was occasionally so much aggravated, that he was affected with convulsions and tremors all over the body, particularly on the opposite side, and generally fell down; nor did he receive any relief from the most powerful remedies that were employed *. A red swelling, like a steatomatous one, much about the same size, was found in the anterior right lobe of the brain, under the cortical substance, in an old man, who at the end of four months had died of a chronic fever, of frequent recurrence, attended with an almost perpetual pain in the crown of the head, and paralysis of the opposite side, together with convulsions recurring after irregular periods, there being at the same time present an ulcerated state of the lungs. A female, arrived at maturity, on a cuticular complaint, under which she laboured, being rashly forced in, was attacked with a *cephalæa*, the seat of which was uncertain, with which for some months she was so much afflicted, sometimes attended with fever, that frequently, on account of the agony she suffered, she was seized with universal shivering, shrieking out, and scarcely ever being able to enjoy sleep; and her pulse was variable, small, contracted, and irregular, seldom frequent. Being at length completely exhausted with the disease, she was car-

ried off. On dissection of the body an abscess was found in the medullary part of the posterior lobe of the brain, near the tentorium, filled with pus, the cavity of which could have contained a large-sized nut and its shell. Fantonus †, on dissecting a man advanced in life, who for several years had laboured under a cephalæa, which during the last months of his life had been attended with very excruciating pain, discovered a hard, whitish, red tumour. The patient, when questioned concerning the seat of the pain, pointed to the crown of the head. He used likewise to be sometimes seized with epilepsy, and complained of very great acrimony of the saliva, and craving hunger. When he suffered the greatest pain his conversation was generally incoherent. At length he expired in a state of profound coma, and convulsed. Nor was any mention of fever made in the history of this patient.

* This account does not differ much from that given by Lancisi, *De Subitan. Mortib.* l. c. c. xi. § 11. p. 65.

† *Epist. de Observat. Med. et Anat. ad Mangetum*, Ep. v.

19. Planc of Rimini found the right lobe of the cerebellum in a great measure destroyed by an abscess, in the case of a young nobleman, who, in consequence of the checking of a discharge of pus from the ear on the same side, to which he had been liable from his infancy, had fallen into a most severe headach, attended with

an acute continued fever, of which he shortly died *. The fever was several times aggravated in the course of the day, and was at the same time attended with shivering, so as to put on the appearance of a hemitritæus. Sometimes loss of speech and lock-jaw came on, but the voice was shortly restored. At last being seized with a palsy, not of the opposite side, as usually takes place, and deprived of his senses, he died †. The account also which Douglas ‡ gives of a man who was affected with an abscess of the cerebellum, deserves our notice; for he complained of a pain and weight in his forehead. Bleeding, purging, and cantharides applied to the neck, had proved of no service. He was obliged to sit with his head inclined forward, for the pain was aggravated by the opposite position. What is very surprising, he was quite free of fever, nor was he troubled with any spasmodic affections. But he complained of almost perpetual sickness, and he could enjoy scarcely any sleep. On the following morning he expired almost in a state of syncope, which suddenly came on, without any convulsion or palsy of either side having preceded. In the middle of the cerebellum was found an abscess, which contained two ounces of white pus. There was also present a considerable quantity of effused pus, which had proceeded from the bursting of the left lateral sinus, and

probably occasioned the patient's sudden death. From the symptoms which I have enumerated as having occurred in these patients (18. 19.), an attentive practitioner will be enabled in similar cases to form a tolerably accurate guess concerning the cause of the complaint. But to divine the more hidden complaints which proceed from an unnatural conformation of the parts, almost exceeds the bounds of human ingenuity. Whichever wishes to consider the histories of most of the causes which come under this head (4. 5.), in order to be the better enabled to form the diagnosis, may consult Bonetus ||, Fantonus §, Morgagni ¶, Lieutaud **, and other authors who have collected facts on the subject, but particularly the medical journals, and the various Transactions and Commentaries which are published ††.

* *Storia Medica d'una Postema del lobo destro del Cervelletto, &c.*

† We find a pretty similar case recorded in the *Medical Commentaries by a Society of Gentlemen in Edinburgh*, of a man thirty-six years of age, which it may not be improper to quote here. From his infancy he had been accustomed to an occasional discharge of pus from his right ear; but he did not experience much inconvenience from it. He had only lost the hearing of that ear some years before. It was at length, however, affected with a most excruciating pain, which in a short time not only spread to the head, but likewise excited nausea, attended with a gnawing sensation at the mouth of the stomach. Upon the tenth day the patient fell into a sleep and kind of stupor, and during his sleeping spoke incoherently. On the following day he became completely

delirious, raved, and was affected with fever. On the twelfth day delirium and deep sleep alternated with one another; a looseness came on; and in the evening he became lethargic. At night the limbs were occasionally convulsed; and frequent subfultus tendinum took place. All these symptoms increased on the 13th, 14th, and 15th days. The convulsive affections were more frequent; the delirium more manifest; the pulse upwards of an hundred; a strangury was present; the pupil was fixed and dilated, and could not be made to contract on the application even of a bright light. On the sixteenth day a complete loss of sense came on. To the frequent convulsive affections, and subfultus tendinum, difficult respiration was likewise added; the pulse was extremely various, but generally very frequent. The bladder was distended with urine. On the seventeenth at day-break he expired apoplectic. On opening the skull the back part of the middle lobe of the right hemisphere was found adhering closely, for the breadth of about two fingers, to the dura mater, where it looks towards the os petrosum, and likewise to the *tentorium cerebello super-extensum*. Underneath, in the substance of the brain itself, an abscess was discovered, containing nearly two ounces of very fetid, greenish pus, and had corroded the brain itself. The surface of the left *corpus striatum* appeared inflamed. Likewise each *thalamus* of the optic nerves was tinged with a red, dark colour. Inferiorly and posteriorly there was some greenish pus. The *septum lucidum*, *fornix*, and sides of the third ventricle, together with the anterior process of the cerebellum, which lies above the valve of Vieussien, cohered more laxly than usual, were green, and emitted a very fetid smell. In the ventricles two small spoonfuls of limpid lymph were found. The dura mater, where it surrounds the os petrosum, was black. The os petrosum itself was somewhat obliterated, compared with the opposite one, but by no means carious. The passage of the right ear was filled with brown, greenish, fetid pus, with which in like manner the whole cavity of the tympanum abounded, and its membrane

and bones seemed to have been long before completely destroyed.

‡ *Edinburgh Medical Essays.* || *Sepulchret. Anatom.* l. i. sect. 1. *De Dolore Capitis.* § *Observ. Anat.* iii. vi. ix. xxv. Likewise *Epist. ad Manget.* vol. viii. n. 3. 6. ¶ *De Sed. et Caus. Morb. Epist.* 1. and elsewhere; consult the parts in the third index of that work under the head *cerebrum.* ** *Hist. Anatom.* †† Namely, those of England, and the *Hist. et Mem. de l'Acad. des Scienc. de Paris*, the *Journal de Medecine* of Vandermonde, the *Giornale Medico di Venezia*, *Nouvelle Letterar. del Lami*, *Avvisi sulla salute umana del Sig. Targioni*, *Raccolta d'Opusculi Medico Pratici, e Fisico Medici Dello Steffo*, *Giornale Medico di Firenze*, *Magazzino Toscano del Sig. Manetti*, *Comment. de Reb. in Med. et Scient. Natur. gestis*, Lipsiæ.

20. With regard to the prognosis, a few general remarks must be made. That pain which affects the head externally is less dangerous, and more easily cured, than that which is seated internally. For there is reason to apprehend that the latter may terminate in blindness, distension or rigor of the nerves, madness, phrenitis, epilepsy, loss of memory, apoplexy, sphacelus, abscess, and death. That which proceeds from excessive serum, or phlegm, although it is of long continuance, is generally attended with less danger, unless it injures the internal parts of the brain. It is unfavourable when it supervenes on acute fever, if it be conjoined with urine, which, from being thick and depositing a sediment, has become thin and pellucid; and likewise when it suddenly occurs in people verging on old age, or after angina, or in consequence of

the latter being too soon discussed * ; as it affords a proof that the morbid matter is carried to the brain, and that phrenitis is threatened. For the patient runs the risk of falling into lowness of spirits, if the pain, from being acute and violent, immediately grows milder, or ceases, without being preceded by any critical evacuation, or diminution of the disease in other respects, as it indicates the destruction of the sentient faculty, and the commencement of gangrene.

* The author of the *Coacæ Prænotiones*, n. 372. edit. *Lindem. pub.* at Leyden, 1665 ; which is the one I generally follow.

21. It is likewise a bad symptom when a person is affected with headach, to vomit frequently, particularly rust-coloured matter, and to be affected with deafness and watching * ; but this must be understood of the idiopathic complaint. For in such a case the vomiting is sympathetic, and is occasioned by the stomach and abdomen being drawn into consent by the *par vagum nervorum*. When this happens the patients are quickly seized with raging madness. It is likewise a bad sign when women, during the period of gestation, are affected with headach, together with drowsiness and heaviness †, or are attacked with convulsions ‡ ; for it seems to arise from a congestion of blood in the brain. A headach occurring in acute fever, attended with other bad marks ||, or with debility and rigor, or bloody urine §, or loss of voice, and occasional rigor, is

universally considered as being a most dangerous symptom ¶.

* *Prorrhēt.* 1. † *Ibid.* ‡ *Coac.* n. 517. 534. || *Coac.* n. 160. *Prænot.* n. 129. § *Coac.* n. 22. 28. ¶ *Ibid.* n. 255.

22. The author of the *Coacæ Prænotiones* * observes : “ Those persons who, during the rigor, are very cold, and are affected with a pain in the head and neck, loss of speech, and thin sweat, on recovering their strength, and, as it were, recollecting themselves, are carried off.” The same author informs us, that it is a very bad symptom for a person who is affected with a pain in the head, together with a certain degree of deafness, trembling of the hands, pain in the back of the neck, and voids black, thick urine, to throw up green-coloured stuff. Lastly, it is considered as being a fatal mark in the case of headach †, for the patient to observe certain appearances floating before the eyes, called *muscæ volitantes*, to grasp the bed-cloaths, and pull down things which he conceives to be sticking on the walls.

* *Coac.* n. 1. † *Prænot.* n. 17.

23. According to Hippocrates, “ where a person labours under headach, and feels the pain all over, a discharge of pus, or water, or blood, from the nose, or by the mouth, or from the ears, removes the disease *.” This, however, must not be supposed to hold invariably. Sometimes so great is the injury done internally, that such an evacuation proves inadequate to its removal ;

as I have more than once had an opportunity of observing. The patient also receives relief from the bursting of ulcers, and sometimes from sleep and a looseness, or from the expectoration of a thick, inodorous matter †, together with thick urine, and a strangury ‡, or abscesses in the inferior parts ||. The convulsive pain of the head, and also the sympathetic one proceeding from the stomach, uterus, and other parts, is generally of long continuance. Sometimes, however, although it frequently returns at intervals, in consequence of sleep, rest, and abstinence, it is allayed within twenty-four hours. Those persons who are subject to the species of the complaint called *hemicrania*, as they advance in life, in consequence of their sensibility being diminished, and the coherence of their solids increased, generally get greatly better. But the periodical *hemicrania*, particularly those which return in the morning, as I have already said, generally disappear of their own accord, within eight or nine, or, at most, fourteen days.

* *Aphor.* 10. sect. vi. *De Judicat.* n. 81. † *Coac.* n. 172.
 ‡ *Coac.* n. 170. *Prædict.* i. n. 152. || *Prænot.* n. 129.
Coac. n. 160.

THE CURE.

24. The cure must be adapted to the diversity of the causes. When the complaint proceeds from plethora, or congestion, or from inflammation, or quickened febrile motion, it becomes ne-

cessary to draw blood liberally, and from a large wound, from the arms and feet, always keeping in view the patient's temperament, habit, age, sex, and strength. If this is not attended with relief, the frontal or jugular vein *, or the temporal artery itself, may be opened. In the case of an obstinate disease, arteriotomy was recommended, both by Gesner † and Dolæus ‡, upwards of two hundred years ago, and the propriety of it has been since confirmed by the experience of the moderns. Likewise both wet and dry cupping-glasses are advantageously applied to the back, shoulder-blades, and neck, as well as to the occiput; or leeches may be applied to the temples, and behind the ears ||, as well as to the hemorrhoidal tumours, especially in hypochondriacal patients, or those labouring under a diminution or suppression of the hemorrhoidal or menstrual evacuation. It is of the highest utility, however, to excite a flow of blood from the nose, by fomentations, or the vapour of warm water, or by introducing into it a pen with a sharp point, in order to make a wound in it; which is of particular service if the headach proceeds from the suppression of an epistaxis. After emptying the vessels, it is proper to purge the belly repeatedly, by means of gentle medicines; and, as far as possible, to derive the blood from the head by warm semicupium, or emollient cataplasms, or irritating sinapisms.

* It is not unusual for surgeons, when they are desired to open the jugular vein, to retard the return of the blood from the head, by tying a bandage round the neck, to produce a turgescence of the veins; but this proves injurious in diseases of the head. Laying aside the bandage, therefore, we ought to compress the jugular vein, by placing the hand a little above the clavicle, and drawing the head backwards; by which means the vein alone will swell, and become fit for opening, without the head suffering any injury.

† Tissot, *Epist. Varii Argument. de Cephalæa*, p. 185. ed. Venet. ‡ *Miscellan. N. C. ann. vi. obs. 60. p. 90.* || *Ibid. obs. 8. & 90.*

25. When the headach proceeds from a collection of serum, or phlegm, it must be resolved and evacuated. Bleeding in this case is inadmissible, unless, as sometimes happens, it be conjoined with manifest plethora. But the blood ought to be drawn sparingly and prudently, otherwise more danger than advantage may be the consequence. Wet cupping-glasses, applied to the shoulder-blades, are attended with less difficulty, on account of their being more easily borne, and drawing off the serum, together with a small quantity of blood, without injury. Cathartics, especially hydragogues, occasionally repeated, are more convenient. Of this kind are jalap, scammony, the neutral salts, having a bitterish taste, as that employed in England, Modena, Carolina, &c. senna, agaricum, pills made of *hermodactylus*, and of the *succinum Cratonis*, the *pilulæ tartaræ*,

or *hydropicæ*, of Bontius, rhubarb with manna, sweet mercury, and the like. The following remedies possess an inciding and resolving quality, while they cause a discharge of the superabundant serum by the urinary passages, I mean gum ammoniac, the roots of the herb *arum*, squills, and asellus, the succinated liquor of hartshorn, *terra foliata tartari*, and, lastly, wine prepared with the ashes of broom. With these may be occasionally employed, infusions of the cephalic plants, as sage, betony, marjoram, rose-mary, wild valerian root, piony, angelica, and so forth. If these fail of producing an effect, we must next have recourse to the employment of diaphoretics, in the use of which it is generally necessary to persist for a long time. The chief of these are, decoctions of the wood of guaiac, juniper, box-tree, milletoe, saffrafras, sarsaparilla-root, burdock, bark, rough bind-weed, and so on. Several eminent practitioners are said to have employed the decoction of soap-wort with success. Revulsion and evacuation are occasioned by blisters, setons, and issues, especially when applied to the back of the neck *, friction, and similar remedies, which have already been repeatedly mentioned. With respect to blisters, when the disease proves obstinate, after the general remedies and proper evacuations have been employed, modern practitioners advise applying them to the part affected, nay, to the whole head, previously shaved; par-

ticularly the physicians of England, who recommend them as being a remedy of the most efficacious kind, in discussing and evacuating the hurtful fluid, and affording wonderful relief to the pain. And this remedy is neither new nor unusual among ourselves, Louis Septali having long been in the habit of prescribing them in similar cases †. But neither can all these remedies be employed, nor can they severally be used indiscriminately, nor in all patients without a prudent selection. The patient's nature, temperament, and habit, his age, the country, the cause and degree of violence of the disease, and many other circumstances indicating or forbidding the use of particular remedies, must be carefully considered, in order that our judgement may be guided in the choice of the proper means to be employed; which certainly requires a judicious and experienced practitioner. Nor must we be satisfied merely with having employed these remedies; for, after removing the disease by means of them, the patient sometimes remains so languid, and has such a tendency to a bad state of body, that his strength requires being confirmed by the use of chalybeates and the peruvian bark.

* Carol. Pifo, *De Seros. Colluv.* sect. 2. P. I. c. i. p. 42. 43.
 Van. Swiet. § 396. † *Animadv. et Caut. Med.* l. 6. p. 141.
 where these words are to be found, "But when the skin of the head is so thick as not to allow the free admission of fluid,

and no sensible evacuation of humours occurs, I have very frequently found that it is better after shaving off the hair to apply a blister either to the part affected, or to the whole head; for the matter by this means being drawn outwards, is evacuated, particularly that part of it which is thinner, warm, and acrid: for, even when a pain of long continuance proceeds from thick matter, it can scarcely be very violent unless there be a mixture of some portion of that fluid.

26. When the pain proceeds from excessive eating or repletion, it is to be cured by abstinence, purging, or vomiting. It is proper to employ cathartics, stomachics, and stimulants, if dyspepsy has given rise to the complaint. In this case Felici, a physician of considerable eminence in Picentia, proposes likewise administering an emetic *. Baglivi † asserts, that the drinking of an infusion of coffee is a remedy of the greatest service in removing headaches which come on in the afternoon in consequence of indigestion. Langius ‡ cured two patients who laboured under an hemicrania from weakness of the stomach, by giving them, every morning before breakfast, for the space of eight days, 12 grains of unpounded black pepper, and making them afterwards drink a large draught of cold water. I myself have more than once observed the most salutary effects to be produced in this disease by the drinking of medicated waters, particularly the acidulated chalybeate ones.

* *Dissert.* 4.

† *De Capit. Affect. in Acut. in eius. Prax.*

‡ *Miscel. Veritat.* fasc. i. p. 68. 69.

27. When an hemicrania comes and goes every day at stated periods, it nearly resembles, as I have already observed (2. 17.), a disguised quotidian fever. It in fact appears to be what Ballonius names a *partial and topical fever*, because the part affected is not only extremely painful, but likewise warm ; and the temporal arteries throb with more violence and frequency, nearly in the same manner as takes place in fever. Nor is it a rare occurrence for the fit to commence with slight cold or shivering, although the arteries over the rest of the body beat with tranquillity. After employing bleeding, and gentle and repeated purging, which very frequently cannot be avoided, if the paroxysm does not go off spontaneously, it is very successfully removed by the liberal employment of the peruvian bark. Frequently when prematurely given before the quantity of blood has been diminished, and the *primæ viæ* cleansed, it is attended with no benefit. Sometimes the hemicrania is so obstinate, that it cannot be removed unless by opening the temporal artery *. Generally, however, after employing one or two bleedings, in plethoric people, and in those labouring under an inflammatory diathesis, it is sufficient to open the jugular vein, the great utility of which, in this disease, has been celebrated, not only by the most ancient physicians, but also by those in modern times, particularly by Richa of Turin †. The same

author affirms his having derived almost equal advantage from the application of leeches to the temples.

* Prosp. Alpin. *Medic. Ægypt.* l. 2. c. 12. et Ludwig, *Com. de Reb. in scient. Natur. et Med. gest.* vol. iii. p. 535. † *Constit. Taurin. alter.* p. 79.

28. Aperients, emmenagogues, and antihysterical means are necessary in the case of the pain which depends upon obstructions in the vessels of the abdominal viscera and uterus, or upon hysteria, or hypochondriasis originating from a similar cause. But it must be opposed by means of anthelmintics, as shall hereafter be shewn, if lumbrici and other species of worms in the intestines seem to occasion it. When spasms and excessive sensibility distress the patient, stimulants and anodynes, as the different compositions of opium, must be employed. Hence the remedies recommended are the *pilulæ hystericæ*, the *diascordium Fracastorii*, the *theriaca Andromachi*, the *philonium Romanum*, the *mithridatium Damocratis*, the *laudanum nepenthes Quercetani*, the *laudanum liquidum* of Sydenham, the *extractum opii gummosum* of Baumè, castor, musk, camphor, the volatile salt, spirit and oil of amber, and so forth. Baglivi proposes the powder of the *gutteta* of Riverius, to the extent of a drachm, with a decoction of primrose, which, however, judicious physicians of the present day would wish to be freed of many trivial and

useless ingredients, lest, on account of them, it should be rejected as wholly void of any medical virtue. On the whole, patients of a delicate constitution, and endowed with sensibility, agree best with temperate remedies; and if they be of a rigid and dry fibre, the tepid bath, and copious drinking of the purest water, are well calculated for them. On the other hand, if there be too great laxity of the fibres, as happens in people of a phlegmatic temperament, or cachectic habit, in the case of paralysis, drowsiness, impaired memory, or sense, those remedies are better adapted to them which possess a gently aromatic quality, are slightly stimulant and strengthening, or even rubefacients and blisters †.

* *De Dolore Capitis in genere.*

† Hoffman. *Med. Syst.*

T. 3. sect. 1. c. v. § 45.

29. The thin, acrid, serous fluid, which the ancients named salt, or bilious (13.), if it be collected in any part, occasioning a *warm pain* (3.), requires decoctions of the cooling herbs, whey, and milk; nor ought we to be deterred in this case from the employment of milk, by the authority of Hippocrates, when he affirms that it proves injurious to people labouring under head-ach; for this assertion, I imagine, is to be understood only of the pain in the head occasioned by imperfect digestion, and an acid in the stomach. I am likewise of opinion that this method of cure

ought to be adopted in the species of pain to which persons endowed with extreme sensibility, and affected with derangement of the nervous system from any slight cause, are liable. Nor must we then lay aside opium *, the *laudanum liquidum* of Sydenham, the *syrupus de meconio* of the same, and the other remedies already enumerated (28.). But if the remedies containing opium, and possessing a narcotic quality, be not borne well, as sometimes happens †, or the other remedies proposed there do not turn out well, in their room we may safely substitute the *liquor anodynus mineralis* of Hoffman, vitriolic ether, the *spiritus antepilepticus* of Pezoldt, emulsions of the greater cold seeds, and white poppy, water distilled from the flowers of violets and wild poppy, or green nuts redistilled, which are endowed with a remarkably anodyne and sedative quality.

* When there is great reason to suspect the presence of ~~too~~ acute sensation, giving rise to a headach from any slight cause, which, on account of that acuteness of sensation, becomes excessive, Ballonius advises our having recourse to narcotics. Epid. 2. et consil. 1. & 43. lib. 3. ex Boneti recensione.

† We very frequently fall in with women or men, in whom, from a peculiar idiosyncrasy, opium, instead of occasioning rest and sleep, excites anxiety, heat, giddiness, flushed face, nausea, and watching. For such persons, therefore, we ought rather to prescribe anodynes, of which kind are the remedies of which I have already made mention. I know a nun to whom two or three grains of musk were given with advantage, and likewise another woman, who enjoyed no sleep, un-

less she every night took a small spoonful of Pezoldt's *antepileptic spirit* in a draught of cold water.

30. With regard to the remedies which afford relief when the pain is a symptom of other diseases (3.), it is not necessary to speak, as, on overcoming these by the proper means, it likewise is removed. But for curing the headach which is occasioned by lues venerea, the diaphoretic decoctions of the woods are universally recommended. To which, if crude antimony be added, they are supposed to be rendered more active. Malpighi, as I have learnt from Beccaria, set such value upon the decoction commonly called the *decoctum ex lignis*, and that made from the shells of nuts, that he used to assert, that the most obstinate cases of syphilis, which had defied the power of mercury, frequently yielded to it *. It must not be supposed, however, that this remedy is uniformly productive of its salutary effects. For it is sometimes employed to no purpose; in which case, if symptoms which render the presence of syphilis suspected be observed, it is the practitioner's business with all dispatch to hasten to the employment of mercury, as being the most efficacious remedy which can be used.

* The decoctum antivenereum of Malpighi.

Rec.—Antimon. crud. contus. et nodulo inclus. unc. iv. Rad. sarsapar. elect. et incis. unc. iij. Putam. nuc. virid. unc. iij.

M. Infund. per h. xxiv. in aq. font. lib. viij. super ciner. calidos. Deind. decoq. ad tert. part. consumt. Col. et colat. unc. viij. dentur ter in die per dies xx. aut xxx. non omisso decocto secundario pro potu ordinario.

31. If the presence of worms in the nares, frontal sinuses, or other subcutaneous parts, be suspected, they must be displaced by means of the vapour of warm water, and errhines, or destroyed by the fumes of tobacco and burnt powder of camphor. Camerari, on the authority of Littri, makes mention of a worm having been expelled by the employment of snuff*. With this view Vogel † recommends to the patient, inhaling by the nostrils and mouth the smoke arising from the leaves of wormwood, horehound, betony, and lesser centaury, of each two drachms, angelica-root, zedoary, and amber, of each one drachm, and half an ounce of crude antimony, beat up together, well mixed, and sprinkled upon burning coals.

* *Dissert. Epist. xii.* † *De Cogn. et Curand. Morb.* § 420.

32. Besides, I must not omit here mentioning the proper remedies applied externally for alleviating the pain. Rose-water, or that of elder-flowers, and vinegar applied to the fore-head, whether tepid or cold, allay, discuss, and repress the pain, and in a certain measure check the motion of the blood. When the pain is of the convulsive and spasmodic kind, the temples are very properly anointed with the *unguentum populneum*,

or some opium, with a little camphor and saffron dissolved in Hungary water ; or they may be rubbed with vitriolic ether, which allays the pain and diminishes the heat. The juice of vervain, or the herb itself pounded, and applied to the part where the pain is felt, is supposed to be serviceable in the case of every pain in the head, as if it possessed a *specific* property. Some likewise advise the introducing into the nostrils some anodyne tincture, or the *balsamum vitæ* of Hoffman *, or camphorated spirits of wine. For they consider it as reasonable to suppose, that in consequence of being immediately applied to the olfactory nerves, the others also are made to feel the efficacy of the medicine. In general the part affected may be most advantageously fomented with warm water, or tepid milk, or warm coals wrapt up in a cloth. In the periodical *hemicrania*, a few hours before the accession of the pain, I am in the habit of applying to the temples and frontal sinus, theriac, with gum galbanum and camphor, beat up with a certain quantity of vinegar. For it proves resolving, discussing, and blunts sensation, in consequence of which a milder paroxysm frequently succeeds.

* The balsamum vitæ of Hoffman.

Rec.—Ol. destillat. Lavendul.

Majoran.

Caryophil.

Macis.

Cinnamom. an. scrup. j.

Rutæ.

Succin. alb. an. scrup. sem.

Citri e cort. express. scrup. j.

Ambr. gryseæ scrup. sem.

Olea cum ambra, et balsami peruviani scrupulo uno misceatur, atque in spiritus vini rectificatissimi unciiis decem solvantur. Intern. datur a gutt. x. ad xx. ad nauseam, ad colicam, ad diarrhoeam. Extrinsicus ad roborandas, firmandasque partes.

33. I cannot here pass over in silence a singular and bold method of treatment once adopted by the celebrated Tiffot in the case of a most violent and long-continued *cæphalæa*, with which an unmarried woman of thirty years of age, otherwise sound and vigorous, as country-people generally are, was distressed *. The seat of the greatest pain was the *internal posterior angle of the right parietal bone*, and it was confined to the *space of a sixpence*. But the *whole forehead* was affected by consent. Venesection, arteriotomy, warm semicupium, immersion of the whole body in cold water, letting cold water fall by drops on the head, opium, and setons, had been tried without effect. She had only received some temporary relief from wet cupping-glasses being applied to the part affected; and somewhat more lasting benefit from a copious suppuration excited by cantharides applied to the head. He conjectured that the pain was externally situate, and as he thought that no part below the skin and muscles could be affected with it, he caused

a crucial incision to be made in the part affected, extending all the way to the face, that by dividing the nerves of the skin or muscles the feeling might be destroyed. From the moment of performing the incision the pain disappeared, and, after a suppuration of considerable continuance, even that which affected the forehead gradually ceased †. But nobody who does not possess the same sound judgment and intimate knowledge of anatomy, would presume to have recourse to such an experiment. Probably by employing the decoction of the woods, as it is called, internally, and the cautious rubbing in of mercury, externally, the cause of the pain in such a case might be removed, without adopting so harsh and doubtful a method of treatment. Frequently the obstinacy of the pain, and the nature of the part affected, as well as the most careful consideration of all the circumstances, even when there was no reason to suspect the presence of a venereal taint, have led physicians to employ this simple and efficacious treatment with success.

* *Epist. Var. Arg.* p. 185. *Edit. Venet.*

† A case which occurred to Gavasetti (*De Cauter.* c. 3.) is in point here. A constant sympathetic headach arose in consequence of a person's thumb having been bruised. It disappeared, however, on the thumb being cauterised. Vid. Haller's *Elem. Phys.* T. 4. lib. x. sect. vii. § xxiii.

34. I shall add, in the last place, that in

every case of headach the most ancient physicians in general considered it as necessary to abstain from meat, to drink water, and shave the head. But in the case of one occasioned by a warm cause, they advised bathing the head with abundance of cold water, or employing vinegar of roses. If it proceeded from cold, or if a tenacious and thick humour required being dissolved, they recommended fomenting or chafing the head with warm water, or letting it fall by drops upon the part, and afterwards anointing it with warm oil, and covering it with cloths; at the same time bathing the feet, and employing remedies to clear the nose, exciting a flow of saliva by the proper means, purging the belly, and, by means of mustard, cantharides, or red-hot iron, exciting ulcers, to afford an outlet to the disease*. Experience also has shewn, that in the case of a long-continued and confirmed headach, it is sometimes allowable to employ the cold bath, and that it is attended with service, after the head has been shaved, to suffer the hair to grow, and to comb it frequently; by which means I once observed a nobleman in the prime of life, and of a phlegmatic and corpulent habit, cured of a cephalæa with which he had been constantly afflicted. It is moreover of great consequence in the treatment of headachs to cover the feet, and raise the head; which remark it is likewise very necessary to keep in view,

to prevent the coming on of the complaint, particularly in persons devoted to the study of literature.

* Vid. Celf. l. iv. c. 2. n. 5. *ad* 160.

CHAPTER II.

OF HYDROCEPHALUS AND SPINA BIFIDA;

OR,

THE WATERY SWELLING OF THE SPINE.

35. THE next disease to be considered is *hydrocephalus*, because it is frequently conjoined with headach, or proceeds from similar causes. This name was formerly given to that disease in which the head becomes turgid with a watery fluid, swells, and easily yields to the pressure of the finger. But under it are now comprehended several complaints which differ both in their seat and effects, in which there is sometimes no external swelling. It is a mark, however, in common to them all, to arise from some collection of water, or lymph, which is found effused either between the skin and pericranium, or between the pericranium and skull, or within the cavity of the cranium itself. The last happens in two ways, either in consequence of the bones of the cranium being too widely separated, which most commonly happens to the foetus, or in infancy;

or, in consequence of them not being separated at all, which is a fault chiefly incident to mature age; although I do not deny that sometimes there are instances of grown up people, and those advanced in life, the bones of whose cranium have become separated by disease. We are informed by Ramazzini and Hamberger, eminent medical professors, that this has happened to people labouring under long-continued and violent headach.

36. The first distinction of hydrocephalus, therefore, is into *external* and *internal*. In the external species, if the fluid is collected in the first situation (35.), Platner affirms that the swelling proceeds to an enormous extent, exhibiting through the skin a pellucid fluid, as if contained in a glass or horn. If it is collected in the second situation, which is of less frequent occurrence, the head does not swell to such a degree, but when pressed becomes elastic like a distended bladder*.

* *Instit. Chir.* § 745.

37. There are two kinds of internal hydrocephalus, as I have already observed (35.), of which the one may be said to be composed of the internal and external kind, because in it the water fills and distends the internal parts of the brain in such a manner as even to push the bones of the cranium outwards, and cause a separation of the futures, and at length escaping through them, betrays it-

self by an enormous swelling of the head: and this seems principally to have happened in fœtuses which have been observed by dissectors to want the brain altogether: I say have been *observed* only, for Morgagni is of opinion that they did not really want the brain originally, but rather that it had become gradually so macerated and dissolved, as at length to escape through some hole, as that of the occiput or spine,—which in fact appears much more probable.

38. But the other species of the complaint, as it takes place without the separation of the bones of the cranium, and does not betray itself by any external tumour or swelling, has not universally obtained the name of hydrocephalus. For some authors suppose, that when the head is not swelled, hydrocephalus cannot take place. Most writers, however, among whom Morgagni holds the principal rank, are of opinion that the same name, without doubt, applies to this species of the complaint also *. For, when a great collection of water gradually takes place within the cranium, increasing more and more daily, if the bones yielded to it, as happens in infants, it is perfectly obvious that the swelling of the head would appear also externally; because most of the causes giving rise to a collection of water in the cranium of young infants, exist in grown up people, and cause the same accumulation †. But this species of internal hydrocephalus may be

distinguished into acute and chronic. By the first term I should distinguish that disease, which has a rapid tendency to death, and is accompanied with considerable fever: by the last that which proceeds to a fatal termination by slow degrees, and is unaccompanied with fever, or at least attended with a very slight one.

* *De Caus. et Sedib. Morb. &c.* epist. xii. n. 3.

† Zwinger, who has collected a number of cases of the complaint, and carefully compared them, deserves to be consulted by the student. Vid. *Act. Helvet.* vol. i. c. 1.

39. It appears, therefore, that the proximate cause of hydrocephalus is a gradual accumulation of watery fluid filling either the external or internal parts of the head, or both together. The remote causes appear to be the following: an obstruction of the veins which return both the blood and lymph from the head and brain; compression sustained during parturition by the mouth of the uterus, or by the umbilical cord twisted round the neck; loss of tone of the absorbents; polypi; glandular tumours about the neck; the rupture of the lymphatic vessels; contusions; a bad habit of body; vitiated fluids; a ferous colluvies and universal laxity and atony; scalded head, tinia, and scabies, being forced in; the suppression of the secretion of urine and sweat, and so forth.

40. An effusion and congestion of serum in

the ventricles of the brain, particularly the anterior ones, constitutes *hydrocephalus interuus*. I have already shewn that a collection of it between the dura and pia mater, or between them and the brain, seems rather to induce comatose affections than actual hydrocephalus. But several particular causes, which I shall shortly enumerate, may contribute to the production of such a congestion. Perhaps the most frequent and chief of them is, the bursting of hydatids, generated in the choroid plexus, or elsewhere within the brain.

41. Likewise morbid conditions both of the *infundibulum* and *pituitary gland* are considered by Morgagni as capable of producing it. For although Vieussen, Ridley, and Lieutaud deny that the *infundibulum* is hollow, he still adheres to the opinion of the ancients, and holds it as a certain fact, that the serum of the ventricles is carried down the *infundibulum* to the pituitary gland, where it is absorbed. But as no certain conclusion, with regard to the *infundibulum* being hollow, can be drawn from experiments and injections*, on account of the very delicate texture of the part, and, according to Sabatier†, one of the ablest anatomists, as we are still ignorant of the true structure and nature of the pituitary gland, why might not Morgagni, whose intimate knowledge of anatomy has not been surpassed, be allowed to entertain his own opinion on the subject?

* Murray, Professor of Anatomy at Upsal, lately contended

that the infundibulum was hollow, because in the brains of men who had been frozen to death, he had discovered congealed watery fluid penetrating into the infundibulum. Others likewise have observed in it a portion of blood which had fallen from the ventricles. But the assertion of Murray is contradicted by the repeated experiments of Girard, Professor of Anatomy in the college of Parma, who was never able to discover in the infundibulum water congealed with cold. Nor is it rational to conclude, on account of blood having been found in the infundibulum, that it is naturally hollow; because the force, impulse, and gravity of extravasated blood may be so great, as to make new room for itself in the very soft parts of the body, as I myself have frequently found, and experience has shewn, to happen in the other medullary parts of the brain, where no cavity exists naturally. Add to this, that Girard's observations are confirmed by the very accurate researches lately published by Vincenti Malacarn, distinguished for his minute knowledge of the structure of the brain. On repeating the experiments of Murray, he was not able to discover any cavity in the infundibulum. It will be better, therefore, to leave this question to the decision of time. But let us grant that the infundibulum is not hollow. Still it appears, from the experiments of Malacarn (*Delle Osservazioni in Chirurg.* Part 2. p. 45.), that the infundibulum and pituitary gland are very amply provided with lymphatics, so that he does not hesitate to refer the latter to the class of lymphatic glands. Hence it follows, that the lymph is conveyed from the ventricles of the brain by the lymphatics to the infundibulum and pituitary gland, and thence to the common receptacle. If the reflux of the lymph be supposed to be impeded, either by the obstruction of the cavity of the infundibulum (granting it to be hollow), or from the infarction or compression of the lymphatics, will not the infundibulum and pituitary gland be found to serve the same purpose?

† *Traité Complét. d'Anat.* T. 1. p. 498.

42. Let us, therefore, grant that the hypothesis

of Morgagni and the ancients, concerning the office of the infundibulum and pituitary gland, is true. It will readily appear that the morbid conditions of each, which may give rise to hydrocephalus, do not differ greatly from one another. And with regard to the pituitary gland, he observes, we must consider the peculiar condition of this gland, by which either the admission or transmission of water is prevented; namely, its being defective, as sometimes happens; its being obstructed; its having become scirrhus; its being destroyed, and consumed; or the water itself having acquired such spissitude and density as to be incapable of passing through the gland; or, after having entered into it, its not getting out again, or its possessing such acrimony as to irritate the extreme tubes of the infundibulum, and probably obstruct them by inducing spasm: which, however, is a fact that will not be readily granted by those who have ascertained by experiments that the nervous and medullary fibre is destitute of irritability, or the property of contracting itself on the application of a stimulus. Besides, the obstruction of the infundibulum itself, or the union of the fornix with the base of the lateral ventricles, or very violent compression, will likewise prevent the free passage of water from the ventricles to the pituitary gland.

43. But, as Morgagni observes, it does not

always happen, although the pituitary gland be found in a morbid state, that a great collection of water takes place in the ventricles of the brain : and, on the other hand, although it remain perfectly found, they have sometimes been found quite full of water. We must, therefore, as he concludes, suppose the existence of other passages by which the serum, which is found in the ventricles, is absorbed. If these become obstructed, or from any other cause cannot perform their office, an accumulation of serum will take place, although the pituitary gland be in a found state. But if they remain open, and nothing be wanting to the due performance of their action, although the gland has become injured, after all such an accumulation of serum as is adequate to the production of hydrocephalus will not happen. It is highly probable, then, that this affection occurs when the serum is discharged more abundantly into the ventricles by the exhalant arteries, or inorganic pores, than it is received by the pituitary gland and other passages, namely, the absorbing lymphatic veins †.

* *De Sed. et Caus. Morb.* Ep. iv. n. 36. † *Id. ib.* Ep. xii. n. 3.

44. Sometimes another disease supervenes upon hydrocephalus internus, I mean the watery swelling of the spine, named by us *spina bifida*. It arises in the vertebræ, and seems to be formed by the swelling of the spinal marrow. Every

part of the spine is liable to this disease, but more particularly the inferior lumbar vertebræ, and the top of the *os sacrum*. Snip and Swagerman, as we learn from Portali *, have observed similar tumours upon the neck, as large as a person's head, unaccompanied with any paralysis, either of the superior or inferior parts of the body †.

* *Mém. de l'Acad. Roy. des Scienc. de Paris, an. 1770, 1771, p. 36.* † Drawings of such swellings may be seen in Ruyfch. Annot. 34. fig. 36.

45. These tumours are prominent, of the natural colour, soft to the touch, more or less distended, according to the patient's posture, full of water, and, on looking through them with a candle, they appear diaphanous, because the water collected in them is generally limpid. When pressed with the points of the fingers, they are found to be divided in the middle. According to Platner's * explanation of their origin, when an accumulation of water takes place in the anterior ventricles of the brain, it gradually descends by the aqueduct of Sylvius into the third ventricle, from whence, if there be no outlet into the infundibulum, it proceeds through the greater valve of the brain into the fourth, thence opening for itself a passage into the tube of the spine. This very frequently happens in parturition, du-

ring which the head is sometimes very violently compressed by the mouth of the uterus.

* *Instit. Chirurg.* § 748.

46. A collection may be formed in the spine, not only of the water which descends from the internal parts of the cranium, but likewise of that which is secreted within the spine*. Hence sometimes a dropsy of both concurs, sometimes of one only, or *hydrorachitis* is observed, both in fœtuses and infants, and also in boys and grown-up people, but much more frequently in the former, their vertebræ, like the bones of their head, being of such a nature as to be very apt to yield, and sometimes actually giving way.

* Portali, in consequence of the observations he had made, contends that the seat of the water collected in the *spina bifida* is in the canal which runs all along the spinal marrow, and which was formerly described by Columbo and Carol. Stephani, although of late it has been almost forgot, or at least much neglected; and he is of opinion that this canal was formed by nature to admit of the alternate intumescence and depression of the spinal marrow, in the same manner as happens in the brain. *Mém. de l'Acad. Roy. de Scienc. de Paris de l'an. 1770 & 1771.*

47. In consequence, therefore, of a greater or lesser number of the vertebræ opening, and water pressing upon the integuments of the spinal marrow, there arises in the back-part of the spine a tumour, sometimes greater, sometimes smaller, soft, particularly in the middle, watery, generally pellucid, like an hydatid, sometimes semi-opaque,

in appearance not unlike hydrocephalus, as I have already remarked *. According to Morgagni †, by whose authority I am generally disposed to be guided, “ they open chiefly where the spinal processes afterwards arise, not only, as is believed, because the bones are then disjoined,—for they are likewise separated on each side, where they are connected with the bodies of the vertebræ,—but likewise, as he supposes, because the resistance of the incumbent muscles and tendons is much less there than at the sides of the spine.” For in the foetus, the part of the canal of the spine, where the bones of the vertebræ unite posteriorly, is extremely delicate, as it is scarcely covered with any thing but the common integuments, and is not osseous, but cartilaginous, and the finer and softer the younger the foetus is.

* The size of the *spina bifida*, as I have already noticed, is various. But in the foetus, or immediately after birth, it is said to be sometimes about the size of a walnut, sometimes as big as a common turnip. † L. c. Ep. xii. n. 9.

48. Some authors, however, derive the *spina bifida* from compression of the lateral part of the spinal marrow, where the nerves pass out; on account of having at times observed it accompanied with paralysis of the limbs. But they appear to be mistaken, as in general paralysis, at least the genuine complaint, is not present, or only supervenes late in the disease. Besides, Swa-

german * observes, that it takes place only after birth, in consequence of some predisposing cause. Others, again, as Heverman †, refer the cause both of *hydrocephalus* and *spina bifida* to an improper position of the foetus in the uterus, alleging, with a shew of truth, that in consequence of the back and loins being bent too much forward, the vertebræ are drawn asunder, and become protuberant.

* *De Hydrocephalo et Spina Bifida, Amstelod. 1767.* † *Vermischte Bemerkungen und Untersuchungen, &c. p. 304.* Vid. Ludwig. *Comment. de Reb. &c. vol. xv. p. 309.*

49. I have already observed (44.) that the superior part of the *os sacrum* is sometimes affected with these swellings. But because the inferior and external part of it, which, according to Ruysch, is naturally somewhat open, is nevertheless not more frequently liable to them, Morgagni, inquiring into the cause of this, thinks that it proceeds from the tube of the thicker membrane, destined for containing the cauda equina with a certain quantity of water, not being extended to the lower part, where it opens; but that it sometimes happens, that by the force of the morbid collection of water it is pressed downwards, and at length, being lengthened to that part, becomes prominent, causing the external swelling *.

* Concerning these tumours, the reader may consult a dissertation entitled, “ *Dissertatio Frid. Orthii de quibusdam Tumor.*

tunic. externis sub prasidio Jo. Salzmanni *habita*; and the *Programma* of Platner, *Morb. Nov. ann.* 1754, together with the observations of Trew on this subject, published in the *Commerc. Litterar. ann.* 1741. hebdomad. 20. & 21.

THE DIAGNOSIS.

50. THE marks of hydrocephalus externus have already been pointed out (35. 36.). But the first species of the internal complaint (37.) is distinguished by a swelling of the head, which is accompanied with some hardness, by the fore-head becoming prominent, by the futures being too loosely connected *, and by the eyes becoming fierce, prominent, and moist. It is likewise indicated, if tumours arise upon the soft futures of the bones of the head, particularly from that which connects the occipital and parietal bones, and seem at length to hang down from the head †.

* Sometimes, although the futures in young infants, at the beginning of the disease, be separated, and the bones of the skull be loosely connected, as the children advance in life they become so united, that nothing but the largeness of the head is discernible. Instances of this kind are related in Ekmark's dissertation upon *Hydrocephalus Internus*, *pub. ann.* 1745, which I shall quote below.

† Platner. l. c. § 746. Vid. Ruysch. *Observ. Anatom. Chir.* obs. lii. p. 69. fig. 45. et M. Aurel. Severin. *De Abscess. Noviss. Observat.* c. ix.

51. It is more difficult to recognise the other species of the internal complaint (38.), as it be-

trays itself by no internal marks. According to Petit, however *, the following symptoms most frequently occur in it: It is generally preceded in children by difficult or painful dentition, worms, morbid states of the lymph, obstructions, spasms, and convulsions. Nor do the symptoms occurring in adults affected with internal hydrocephalus differ greatly from these. The subjects of the complaint are frequently attacked with slight spasmodic affections of the mouth, lips, and eye-lids; they gnash their teeth, bite their lips, and pick their nose, like children troubled with worms; they become pale, melancholy, and languid; their belly is sometimes open, sometimes bound; their eyes are livid, and the pupil dilated, or they are affected with what they call *mydriasis*. But if the patients become dull and drowsy, if they lose their memory, and impaired sensation, together with heaviness, be superadded to these symptoms, we are not only enabled to conclude with more certainty that hydrocephalus internus is present, but we may even predict that death will shortly take place.

* *Mém. de l'Acad. Roy.* 1718. p. 121. Van Swieten made similar observations, § MCCXVIII.

52. I must not here omit adducing the observations of Fothergill *. In consequence of repeated experience, in the course of a long practice, he confidently affirms, that internal hydrocephalus seldom takes place before the third year of one's age, generally within the fifth and tenth,

and very seldom later †. He observes also, that at that time of life it frequently deceives us, under the appearance of teething or worms, as I have already mentioned on the authority of Petit (51.), until the symptoms increase to such a height as to render the complaint irremediable. The symptoms, however, which denote its presence, according to him, are, particularly headach, pains in the legs, transient and disturbed slumbers, irregular pulse, and the eye-lids being so widely separated as to discover great part of the *albuginea*. The experience which I myself have had, in the treatment of this disease, confirms the truth of these observations, as I have remarked very similar circumstances occurring, and, in particular, when the disease has arrived at its height, I have observed the most excruciating headachs, sometimes universally diffused, sometimes confined to a part, in the same manner as an hemicrania; coma vigil; perpetual complaining; trembling of the limbs; mental emotion; and, what I would wish particularly to be kept in view, *aphonia* occasionally recurring: the pulse sometimes slow and great, sometimes quick and small, and extremely variable; sometimes also frequent and febrile ‡.

* *Medical Observations and Inquiries by a Society of Physicians in London*, vol. iv. p. 40. Vid. excerpt. in *Comment. de Reb. in Scient. Natural. et Med. gest.* vol. xviii. p. 390. 392.

† In a dissertation of Ekmark's, publicly discussed at Upsal,

on the 1st of June 1763, is to be found a rare instance of chronic hydrocephalus internus, accompanied with the account of the dissection of the body, which began to betray itself in a woman when she was only six months old, and continued until the forty-fifth year of her age. It is to be found in Sandifort's *Theaurus Dissertationum*, vol. ii. p. 325.

‡ It may be serviceable in this place to relate the history, although it is short, and by no means perfect, of an internal acute hydrocephalus, that I may distinguish it from the slow and chronic one, as I received it from the person who treated the patient, accompanying it with an account of the dissection. A girl with a large head, about four years of age, of the sanguine temperament, and a good habit of body, but who had formerly been several times attacked with a rheumatic cough, began to complain occasionally of a pain in the head. One day she was suddenly affected with cold and shivering, which were succeeded by heat and considerable fever. She was purged by means of an antiphlogistic cathartic; but as the fever still continued, she was afterwards bled. The fever continuing irregularly, frequently increased, and again remitted without attaining an apyrexia. After the bleeding she became better, inasmuch that the fever not only seemed gradually to disappear, but she was unable to get out of bed, and had a desire for meat, of which she took a larger quantity for several days. The headach, however, never altogether left her, nor did the pulse at all return to its natural state, being irregular and quick. At length, four days before her death, she had another attack of the fever, attended with such an aggravation of the headach, that she first became delirious, and was next attacked with occasional convulsive motions of the face, and, lastly, of the limbs. At length one side of the body becoming paralytic, she continued upwards of twenty-four hours snoring and deprived of sense, till at length, after antispasmodic, antiphlogistic, and revellent means had been employed to no purpose, she expired on the seventeenth day from the commencement of the disease, and on the fourth after the recurrence of the fe-

ver and headach. Her body was dissected in proper time. Kavina, one of the chief military surgeons, and a particular friend of the family, presided on the occasion, and transmitted the account of it to me in writing. On opening the skull, the *dura mater* appeared thick, and of a bluish colour, as it is generally found to be in infancy, on account of the size of the brain, and the darkness of the vessels lying underneath appearing thro' it. Its blood-vessels, as well as those of the pia mater and brain itself, were very turgid and full of blood, and particularly all the venous sinuses, which were filled with an unusual quantity of it. Upon folding back the membranes, the external surface of the left anterior lobe of the brain was found covered with a fine, concrete, clear, yellow fluid, like jelly. The ventricles were tinged with a great quantity of water. Such were the appearances which took place in the head. The thorax was next opened. In the fore-part of the right lobe of the lungs a tubercle was found, from which, after opening it, on pressure, nearly two drachms of lymphatic fluid passed out. Above the same part of the lungs a concretion of yellow, gelatinous, mucous fluid had taken place. In the left side two tubercles were found, which, on being pressed, poured out fetid pus. Externally its surface was marked with a violet-coloured blackish spot. The pulmonary vessels contained scarcely any blood. In the right auricle of the heart there was a great polypus, which caused a considerable swelling of it. The abdomen was not dissected. So far his account goes.

53. No author seems to have described this disease more accurately than Hippocrates. His words are : “ If a collection of water takes place in the brain, an acute pain in the sinciput and at the temples, sometimes in other parts, takes place. At other times there is rigor and fever, attended with pain in the region of the eyes, and blindness, the pupil is divided, the patient sees

double, and, on rising, is seized with vertigo, and cannot bear the appulse of the wind, nor the light of the sun; his ears tingle, and noise is offensive to him; he spits out the saliva and phlegm, and sometimes also rejects his food, and the skin of the head becomes more sensible *.” All which symptoms nearly correspond with those of which I have already made mention from the observations of Petit and others. They generally occur, however, on the disease suddenly attacking a person about the age of puberty, as I have frequently observed. But it is to be remarked, that no one of them (51. 52. 53.) is pathognomonic; nor can we infer any thing from any of them singly; and that, if not all, at least the greater part of them should concur, while the preceding should exactly correspond with the succeeding ones. For they are individually in common to many other diseases and causes. It is to be observed also, that the pain is occasionally absent, or that a sense of heaviness, rather than of pain, is excited, and that the patients are more disposed to lethargy, while sometimes the opposite of this happens, according as the accumulation of water takes place slowly, or quickly, or according as it proves hurtful by its quantity or acrimony †.

* Lib. ii. *De Morb.* n. 15. edit. *Marinel.*

† In the *Act. Helvet.* vol. i. c. 1. is to be found a dissertation of Zwinger on hydrocephalus, well deserving of perusal, in which he has not only amassed instances of the disease from all hands, but very carefully compared and arranged them.

54. Patients labouring under watery swellings of the spine sometimes lose the power of their feet. But in that case, if they be newly born, or young infants, their feet or legs are bent inwards, on account of their remaining in the posture they had held in the uterus, and at the same time fall away on account of the deficiency of the nervous energy. If the collection of serum be confined to the spinal marrow alone, the symptoms of hydrocephalus which I some time ago enumerated are wanting. But if it is collected in both situations, both sets of symptoms are necessarily united. Moreover, if by accident or design these tumours are opened, and discharge lymph, in consequence of which the head is relieved, or the swelling diminished, or if, after a cicatrix is formed, the swelling recurs, it affords a certain proof that the seat and cause of *spina bifida* and *hydrocephalus* are in common.

THE PROGNOSIS.

55. HYDROCEPHALUS EXTERNUS, proceeding from evident causes, is not very difficult of cure at first. But when it has become inveterate, and is combined with a bad habit of body, it can scarcely be removed by the power of medicine. The internal complaint admits of scarcely any hopes. The *spina bifida*, again, is not long protracted, for it shortly proves fatal, and this

it does the sooner the more assiduous we are in attempting its cure. The opening of the tumour, notwithstanding what has been affirmed by some in its favour, is attended with certain death ; which Swagerman * attributes rather to the admission of the air, than to the injury sustained by the nerves.

* L. c.

THE CURE.

56. WHILE the cure of the external species of the complaint is to be intrusted to surgery *, the remedies which are requisite in that of the internal species belong properly to the physician. Fothergill † tells us, that at the beginning of the complaint the same method of cure ought to be adopted which is employed in the cure of worms ; but that, in order to prove serviceable, all the excretions ought to be promoted. For, in consequence of this, the lymphatics, on account of their inanition, become more capable of taking up the fluid, and absorb that which is collected within the skull and brain with greater avidity. Watson proposes diuretics and purgatives, the utility of which has been confirmed by experience ‡.

* Instances of internal hydrocephalus having been cured are related by Pifo, *De Seros. Colluv.* P. l. sect. 2. c. 1. p. 42. as well as by Morgagni and others. Callisen in a few words delivers his sentiments concerning the surgical treatment of the ex-

ternal hydrocephalus. He observes: "When the disease has attained its height, it generally defies the power of art; still it is proper to attempt the cure by means of efficacious discussing and strengthening topical applications, at the same time prudently employing a bandage: by which remedies alone, when no service is obtained from scarification, blistering, or setons, the humour is to be drawn off." *Instit. Chirurg. hodiern.* p. 114. § CCXCIII. But these means ought to be assisted at the same time by the internal cure.

† L. c. ‡ Observations on the subject are likewise to be found in the *Comment. de Reb. in Scient. Nat. et Med. gest.* vol. xviii. p. 392. 403.

57. It is proper, therefore, to purge the belly with jalap, syrup of buckthorn berries, of succory with rhubarb, of manna, and similar remedies, which evacuate the serous humours, and to give them repeated trials after discontinuing them for an interval of some days. During the intervening days we ought to give internally aperients and diuretics, as oxymel, or vinum scilliticum; *aselli præparati*, the succinated liquor of hartshorn, the tinctura tartari, or that of antimony, or amber; the juice of parsley, or hops; gum-ammoniac; decoctions of the diuretic roots, especially of turmeric and madder; those of saffrafras wood, juniper, and guaiac; conserve of juniper-berries, the fruit of dog-hips, and the like. Nor is it improper to employ cinnabar, and even mercury, if necessary: or, when very great atony of the solids, and torpor of the system, cherish the com-

plaint, we may have recourse to tonics and strengthening remedies.

58. When the swelling of the head by these means has begun to go off, what remains of it ought to be resolved by the occasional employment of friction, or aromatic fomentations, or plaisters; and, above all things, the flaccidity of the head ought to be supported by a proper bandage. It is serviceable also to scarify the back of the head, or to cauterise it with hot iron, or to pass a seton through the skin of the back of the neck, to keep up the discharge of pus as long as possible, or by means of cantharides to excite extensive ulcers in some part. But the tumours growing to the spine or *os sacrum* must by no means be opened. For after opening them, in consequence of a copious discharge of water from them, convulsions quickly arise, which are followed by death. Nay, according to Ruysch, we must even prevent their bursting spontaneously. The application of tonics, or astringents, is therefore recommended. In order, then, to avoid the opening of them, which proves so pernicious, and yet to draw off the water from them without occasioning danger, Mathey *, in a thesis of his presented for public discussion, has proposed employing a seton in preference, taking care nearly to fill up the hole with an issue, and to allow the water to come off only by drops. As this plan seems rational enough, I see no reason for not making a trial of it. For what may we not attempt in so hopeless a case?

* *Seance Publique de la Societ. Roy. de Med. de Paris tenue le 9 Decembre 1779, p. 32.*

59. But in the internal species of hydrocephalus, described in par. 38. 52. and which I named acute and violent, I have learnt from experience that every remedy proves fruitless. Even though violent fever and headach were present, bleeding, leeches, cupping-glasses, or cantharides, the bath, fomentations, and plaisters applied to the soles of the feet, have proved inefficacious, as well as resolving, stimulant, and paregoric remedies.

60. In general we must place our reliance rather on the dietetic regimen, to prevent the disease, when it is already commenced, from proceeding to its height, or, when it is far advanced, from immediately proving fatal. It is therefore of great consequence to abstain from glutinous, fatty, and acid matters, to employ a light, dry kind of food, to drink very little, and to use the decoction of contrayerva-root, or that of the bark of saffrafras-wood, or of sarsaparilla-root, or of burdock, in the case of the disease being slight, and slow in its progress, still leaving some hopes of the patient's recovery, and likewise to use gentle exercise, and to breathe the dry, pure air of mountainous situations *.

* See *Dissertatio de Hydroceph. quam pro gradu Doctoris defendit Johannes Henricus Gaudelius, Gottin. 16 Decem. 1763.* It is to be found in *Thes. Dissert. Cl. Sandifort. vol. ii. p. 337.*

CHAPTER III.

OF AGRYPNIA, OR PERVIGILIUM.

61. WE name that long-continued and unnatural watching, by which the strength of the body, and particularly its functions, are thrown into a state of derangement, *agrypnia*, *pervigilium*, or *vigilatio*, to distinguish it from the natural waking state, which proves of short continuance, and harmless.

62. It seems to depend on that condition of the sensorium commune, which takes place in people while awake, but more violent in degree, and more constant. In a subject which is involved in such obscurity, it may be allowable, in order to convey some idea of this state, to suppose, that the fibres of the brain are stretched or moved in the same manner as when they are prepared for receiving sensations, and for performing the other functions of the brain with readiness and alacrity, and that therefore they cannot, without the greatest difficulty, become relaxed or quiescent, as is necessary for the enjoyment of sleep *. Every thing, therefore, which can stretch, vibrate, or in any way move or derange the sensorium commune, may give origin to agrypnia.

* Although the experiments both of Haller, Caldani, and Fontana, as well as those of other authors of very great celebrity, made upon living animals, demonstrate that the nerves are destitute of irritability; nevertheless we can have no conception of the power and action of the nerves, unless some motion, whatever the nature of that motion be, capable of being perceived, at least by the mind, if not by the senses, take place in them, and in their origin. Gaubius on this subject has very properly remarked (*Patholog.* § 524.), “It is very probable that the nervous system, in the parts subservient to sensation, is actuated by a certain moving power, which is probably similar to the vital and muscular one, by the action of which its fibres are rendered tense, rigid, and turgid, and fit for performing oscillations on the application of a stimulus, again remitting and becoming flaccid in a state of quiescence. Nor is it of any consequence whether it be derived from the animal spirits, as they are called, which are diffused through the nerves, or from any other origin, in a subject involved in such obscurity, and which leaves no room even for probable conjecture;” &c. to § 526. where he proceeds: “Although, therefore, the motions which are excited in the sensorium commune are much less manifest than those of the muscles, the extreme delicacy of the nervous medulla must render it liable to be affected and changed, even more remarkably, at least not less so, by immoderate exercise, than the muscles are affected by excess of animal motion, sustaining equal injury in consequence. The very delicate stamina, in whatever manner they are thrown into motion either more frequently, for a longer time, or more violently, are exhausted by their mutual attrition, lose their tone, are thrown into irregular tremors, which they communicate to the neighbouring parts, become spasmodically affected, as it were, and the nervous power is weakened and dissipated: in consequence of which, unless they are allayed by timely rest, dulness of the external and internal senses, imbecillity, confusion of ideas, disturbed sleep, watching, a morbid imagination, delirium, and fatuity arise. May not the dryness and rigidity

which take place in the muscles, arise likewise in these organs, in consequence of which the mental powers are liable to become deranged before the proper period? Sentiments similar to those of Gaubius are entertained by others, and particularly by Bienville, who, when he mentions one of the causes from which he derives nymphomania, or furor uterinus, namely, excessive sensibility, has the following observations: "That which proceeds from a faulty state of the nervous fibres of organic parts, imparting to them a more vivid vibration, whether in consequence of their delicacy or tension, or both together, gives them greater acuteness of sensation." Nymphom. p. 51. *Amsterdam*. 1772.

63. Of this kind are, violent emotions, excessive sensibility, unusual agitation in the circulation of the blood, too great an appulse of it towards the brain, various kinds of acrimonies, pains, want, irritation of the stomach from excessive repletion, flatulency, crudities, hypochondriasis, hysteria, melancholy, thickness, dryness, or an inflammatory diathesis of the blood, fever, a taint in any of the viscera, and consent with the brain, rigidity of the solids, and old age.

64. It is therefore very frequently *secondary*, or *symptomatic*. Sometimes, however, it occurs as a primary disease, requiring a peculiar name. Hence flow various distinctions, which are in proportion to the number of causes. The preceding diseases, which it follows, and those present, which it accompanies as a symptom, denote the *secondary* and *symptomatic* species of the complaint. The primary disease will be readily distinguished from the accurate examination of all the preceding

and existing symptoms, particularly if the symptoms of the secondary or symptomatic complaint be wanting. The due consideration of the presence or absence of the causes which I have already enumerated would very much contribute to determine our judgment concerning this point.

THE PROGNOSIS.

65. PERVIGILIUM, when it proceeds from a slight and accidental cause, is quickly disscussed. This is not the case with the *secondary* one; nor does the *symptomatic* disease in general terminate until the primary disease which has induced it be overcome, or greatly relieved. That which distresses hypochondriacal and hysterical people, although it be generally void of danger, commonly proves tedious and obstinate. But from whatever cause it proceeds, if it be protracted long, it occasions heaviness of the head, pain, anxiety, melancholy, lassitude, dyspepsy, anorexia, wasting, delirium, mania, phrenitis, apoplexy, vertigo, convulsions, and other most dangerous complaints, which are succeeded by death. Hippocrates, therefore, with good reason has observed: "Both sleep and watching, when prolonged beyond bounds, are hurtful *." The convulsions and delirium arising from watching are

dangerous †. There is a tendency in pervigilium, among other symptoms, to convulsions ‡”

* Aph. 3. sect. 11. † Aph. 18. sect. vii. ‡ Coac. n. 20.

THE CURE.

66. As in every other disease, in the treatment of this one it is necessary to consider the diversity of its causes. With respect to the *secondary* and *symptomatic* species of the complaint, I shall say nothing farther here in addition to what I have already delivered elsewhere sparsely, and shall still have occasion hereafter to say. It is removed in consequence of the diseases, of which it is an effect, being relieved, or completely overcome. In the case of the primary complaint, softening, cooling, and correcting remedies, are recommended. Either bathing the feet, therefore, or immersing the whole body in the tepid bath, frequently removes the most obstinate cases of pervigilium. Some patients are relieved by abstaining from supper, while others find their account in having recourse to it; some again, before going to bed, take a draught of cold water, or an emulsion, or milk, or whey, with advantage.

67. But if the plethora or heat of the blood be excessive, or suppression of the evacuations has preceded, or inflammation is suspected to be present, it is serviceable to draw blood. When there are symptoms of dyspepsy they require gentle ca-

thartics. Uneasiness of mind is dissipated by agreeable conversation, concerts, exercise, labour, travelling, employing wine, anodynes, and opium. Nor must I omit to mention, that in this case moderate venery itself has proved serviceable, in people of a vigorous constitution and temperate manner of living.

68. Excessive sensibility, or anxiety of mind, are relieved by paregorics and sedatives, of which mention has already repeatedly been made. The chief of these are, water-lily flowers, those of violets and wild poppy, camphor, musk, the *liquor anodyn. min.* of Hoffman, the heads of white poppy, the *syrupus de meconio*, and liquid laudanum of Hoffman. I knew a married lady whose sensibility was such, that she could never sleep without having previously taken twenty or thirty drops of the *liquor. anodyn. min.* in a cup of cold water, before going to bed, a practice which she had carried on for a number of years. Such as are affected with pervigilium in consequence of weakness of the stomach and of the powers of digestion, procure sleep from the employment of bitter and strengthening stomachics. People in a state of convalescence from a severe complaint, in which the head has been violently affected, are frequently distressed with very troublesome watching. In such a case the sleep has been sometimes restored by giving a little assafoetida, sagapanum, et galbanum, every evening, repeating it cautiously for some days; but

relief has been more frequently obtained by employing more generous diet, by which the blood and other fluids are supplied with new juice, and gradually repaired.

69. But in such cases of pervigilium, especially when the disease is primary, every thing which cherishes the causes of the disease ought to be avoided, together with calefacients, fermented liquors, and coffee; which last, however, does not always prove hurtful, and, on the contrary, sometimes is attended with a salutary effect. A tendency to sleep is likewise occasioned by the soft murmuring of the falling of water, by the agreeable confused sound of people speaking or reading, or by the most profound silence prevailing around.

CHAPTER IV.

OF APOPLEXY.

70. I SHALL now proceed to the description of that affection which is the opposite of pervigilium, namely *apoplexy*, and the various degrees of lethargy and insensibility. But, before proceeding farther, it is proper to remark, that apoplexy has frequently been comprehended by various authors under different names. To adduce some instan-

ces of the variety of names which have been bestowed upon it, I may observe that it has somewhere been named by Hippocrates *aphonia* *, by Celsus *nervorum resolutio* †, by Lommius *morbus attonitus* ‡, and by others *apoplexy*, *sideratio*, and *percussio* ||.

* Lib. iv. *De Vict. Ratione*, et aph. 51. sect. 6. † Lib. iii. c. 27. ‡ *Obs. Med.* l. ii. p. 81. || Jo. Bapt. Molinar. *De Apoplexia*, sect. i. § 3.

71. Apoplexy has the same signification as the Latin word *percussio*, from which probably has been derived the term *ictus sanguinis*, which is employed to denote it by Sext. Aurelius Victor *, and Eutropius †, speaking of the disease of Lucius Verus. For persons affected with the complaint suddenly fall down, as if thunderstruck, and are deprived of sense and motion ‡. Celsus speaking of it observes, “ It sometimes attacks the whole body, sometimes is confined to a part only. Ancient authors have named the former *apoplexy*, and the latter *paralysis* ; I now observe both comprehended under the latter name ||.” Aretæus seems to have approached nearly to the opinion of Celsus, in the following passage : “ Apoplexy, paraplegia, paresis, and paralysis, are synonymous terms ; for they denote defect of motion, or of feeling, or of both ; sometimes of the mental faculty, and sometimes of the other senses. But apoplexy is the loss both of sensation, of the mental faculty, and of motion,

over the whole body §. But both Hypocrates and his disciples have applied the name of apoplexy, not only to the resolution of the whole body, but to the paralysis of particular parts, as appears when he makes mention of apoplexy of the tongue, or arm, of one side, or of particular parts of the body, or of the leg ¶.

* In Marc. Ant. † *Hist. Rom.* l. viii. ‡ Coel. Aurel.
Acut. Morb. l. iii. c. v. Piso, l. i. c. 16. || L. 3. c. 27.
 § L. 1. c. 7. ¶ Aph. 40. sect. vi. Prorrh. l. 2. c. 10.
Coac. Prænot. Ex Dureti recensione, p. 215. n. 13.

72. In the same manner as the names of apoplexy, so do the definitions which authors have given of it differ from one another. But most of the moderns * have remarked, that neither the definition of it given by Aretæus (71.), nor that of others, sufficiently distinguish it from syncope, or death itself, unless we add, that the respiration and motion of the heart remain. On which account they suppose that genuine and universal apoplexy is more accurately defined when they consider it to be “ The sudden loss of the senses, both internal and external, and of voluntary motion, while the motion of the heart and respiration still continue, but for so short a time as to seem to have almost ceased during the paroxysm.” For, in the most violent species of the complaint, every body knows, that the action both of the heart and respiration is suppressed, and that therefore almost at the very moment of the attack

the life is extinguished, or is so diminished as to appear to be altogether extinguished. Whatever, in short, be the cause, it must necessarily arise chiefly from a faulty state of the brain and nerves ; in order that it may be properly distinguished from death or syncope, which arises from other causes, and vitiated states of the præcordia.

* Van Swieten, § 1008.

73. Apoplexy, therefore, with good reason appeared to Morgagni to be, “ The sudden, or at least rapid, diminution of the intimate motions which take place in the brain when we move and think, and which is sometimes so great as to approach nearly to a total cessation, or to pass at once into such a cessation *.” For immediately on its attacking a person, when it is in its most exquisite and violent form, it either totally deprives the person of life, or more or less deranges the motion of the heart and arteries ; it renders the respiration difficult, variable, great, slow, irregular, and is generally accompanied with snoring ; it completely deprives a person of sense or motion, or leaves very slight traces of them.

* *De Sed. et Caus. Morb.* Epist. ii. n. 5.

74. A person in a state of apoplexy resembles a man in a sound sleep and snoring, his limbs being stretched out, and destitute of power, his mouth open, and sometimes emitting froth, his eyes sometimes open, languid, and convulsed, sometimes intirely shut ; his face sometimes turgid and flushed, remaining for some time of

the natural appearance, sometimes quickly falling, and becoming pale, the heat sometimes remaining, sometimes not. It is moreover to be remarked, that very frequently the body is convulsed in one side, while it becomes paralytic in the other, or was so at the beginning, remaining in that state for some time before the body is universally deprived of sense and motion; which happens so frequently, that I scarcely suppose that there is a physician who has not observed it an hundred times.

* Jo. Bapt. Molinar. l. c.

75. The proximate cause has either appeared sufficiently from par. 73. or it consists in the disunion of the connection which exists between the cortical and the medullary part of the brain, or between the medulla and the other parts of the body, at least those which are subservient to sensation and voluntary motion; whatever explanation of that connection be adopted. But there may be various causes which interrupt or do away this connection; they are divided, however, most conveniently into such as are not obvious to the senses, and can only be conjectured and conceived in idea; and into those which fall under the senses, and are detected by anatomy within the cranium, generally consisting in the blood or its serum, and sometimes referable to other morbid states of the body, but more rarely*.

* Morg. l. c. Epist. ii. n. 5.

76. But to begin with the phenomena which anatomy has discovered, it appears beyond all dispute, from the observations of Wepfer, Valsalva, Lieutaud, Morgagni *, and others, that the head is generally found swelled; that all the vessels, both of the membranes and those of the brain, cerebellum, and medulla oblongata, are unusually turgid with blood; that the choroid plexus is distended with varices, or discoloured, or abounds with hydatids; that there is an effusion of blood, or serum, or both, within the ventricles, sometimes forming in the very substance of the brain an hollow, where there is none naturally, and collected within the meninges and brain; likewise that water is collected within the skull, and between the *dura* and *pia mater*, more copiously at the base of the skull, and frequently penetrating into the spinal tube; that a kind of jelly, in place of water, is found filling all the cavities of the brain; that ulcers †, effusions of pus, abscesses, and various kinds of tumours occupying the cerebrum, cerebellum, or spinal marrow, are present; that the pineal gland is enlarged and indurated; that the membranes of the brain are too tense, or too lax; the brain itself sometimes too flaccid, sometimes corrupted, or harder and more solid than it is naturally; that a quantity of extricated air obstructs the vessels of the brain, or is forced into the brain and its membranes ‡; and, lastly, that various complications of these

morbid conditions take place, which is of very frequent occurrence. Most authors likewise mention, that polypous concretions of blood have been found in the vessels of the membranes and their sinuses ; but Morgagni observed them so seldom, and at the same time so frequently combined with other morbid conditions, that he doubted much whether they alone could be considered as causes of apoplexy ||.

* Vid. Willis, *De Cereb. Anat. et Morb. Convulsio. De Anim. Brut.* P. II. c. 2. *De Apoplexia.* Joh. Jac. Wepferi, *Hist. Apoplectic. cum alior. celebr. Med. Observat. historiisque variis.* Venet. 1759. Boneti *Sepulchr. Anat.* L. i. sect. 2. Morgagni *Oper. citat.* Epist. iii. iv. v. Lieutaud *Précès de Médecin.* l. 1. *des Maladies de la tête*, p. 181. *Hist. Anat. Med.* T. ii. l. 3.

† Such ulcers have been observed by Boucher, particularly in scorbutic people. *V. Observat. de Apoplex.* See *Recueil d'Observat. de Médec.* T. 46. p. 544.

‡ Morg. l. c. Ep. v. Molin. l. c. || Epist. iv. n. 23.

77. Such are the principal morbid conditions (76.) which are discovered after death in the heads of those who have died of apoplexy, and which have been unanimously considered as sufficient to induce the complaint, an opinion supported both by reason and experience. Those which are occasioned by external violence are so manifest of themselves as not to admit of a doubt being entertained : for they proceed from violent and evident causes, and shew sensible injuries done to the head and brain. Under this head

come contusions ; blows ; deep wounds ; fractures of the skull, bruises, fissures, some part of the skull being depressed ; and the like.

78. It remains for me to mention some of the causes, which are generated internally, but do not seem to be of such a nature that it can be affirmed of them with certainty, that of themselves they would have been sufficient to produce the complaint. These are generally considered as being a bad confirmation of the head ; exostoses pointing inwards from the skull ; the filling up of the sutures ; induration or rigidity of the dura mater ; the falx having acquired a cartilaginous or osseous nature* ; calculi formed in the sinuses, especially the longitudinal one ; the growing together of the vessels and sinuses ; or the varicose and aneurysmatic distention of them ; a bony or cartilaginous hardness of the carotids, and compression or diminished diameter of the jugular veins †.

* Vid. Morgag. *Epist. Anat. Med.* iii. n. 21.

† In the Transactions of the Royal Academy of Sciences in Sweden, for the year 1757, vol. xviii. Zetzel makes mention of a boy, who, while he was engaged in whipping a top, having his neck too hard bound with his cravat, suddenly fell down in a fit of apoplexy. On his cravat being loosened, and blood being drawn, he again came to himself, recovering both sense and motion, which he had intirely lost.

79. As all these causes, therefore, point out, beyond a doubt, that in this disease the brain and its

appendages are in a certain measure overwhelmed or weakened, so as to become no longer capable of performing their offices ; it will by no means be absurd to conjecture, that the very tender and delicate substance of the brain itself has also suffered some injury, although no such injury is discoverable on dissection * ; which is particularly observable in those persons who have died in consequence of sustaining a concussion of the head, and violent commotion in the brain, or who have been cut off in consequence of apoplexy, proceeding from a fatal intermitting fever ; for, according to Rahn †, generally no sign of injury can be discovered in the heads of such persons ; to say nothing of those who have died of convulsions, of which we shall have occasion to treat more properly hereafter.

* Vallisnier in particular says, that it appears from medical histories, that in several dead bodies of persons who had died of apoplexy, to the great amaze of the dissectors, not the smallest injury, either in the membranes of the brain, or in the cortical or medullary part, or in the ventricles, or in the sanguiferous or lymphatic vessels, or in any other part of the brain or head, was discoverable. *Dell' Uso ed. Abuso delle Bevande, é Bagnature Calde, o Fredde*, p. 57. Modena, 1725.

† *De Miro Capit. et Abdom. Consensu*, p. 78.

80. Hence, therefore, if I may be allowed to form a conjecture, it appears rational to suppose, that whatever fills, distracts, obstructs, bursts, lacerates, corrodes, compresses, and therefore ac-

celerates, or retards, or altogether stops the circulation of the blood and other fluids, of whatever kind, or in any way deranges the intimate structure of the brain, may prove a cause of apoplexy. Under this head come plethora, too great a flow of blood to the head, lentor, an inflammatory diathesis of it, excessive tenuity, an irritating acrimony proceeding from different causes, by which it is almost dissolved ; excess or deficiency of the ferous principle, debility and laxity, or the opposite affections, of the whole brain, and, lastly, external violence.

81. Besides, according to the most eminent physicians *, two other causes have appeared to be extremely apt to induce the complaint, namely, a deficiency in the quantity of the blood, which is not carried to the head in due quantity, and such an obstruction of the vessels as prevents its passage to the brain. With regard to the former, I am doubtful whether a deficiency of blood, from whatsoever cause it proceeds, whether from deficiency of aliment, from excessive evacuations, from hemorrhages, or from the wounding of the arteries which go to the brain, would not give rise to syncope rather than apoplexy. Nor do I well know whether persons affected from these causes come under the definition of apoplexy (72. 73.) and experience the phenomena characterising the disease, such as I have already related them in its descrip-

tion (74.). With regard to the other, it does not appear to me that the obstruction or coalition of any artery carrying blood to the brain prevents its flowing thither freely, through other open passages, in sufficient quantity to enable it in some measure to support and perform its functions; which indeed has been clearly demonstrated by anatomical observations †. For I consider it altogether as an hypothetical and unheard-of opinion, that the carotids and the vertebral and cervical arteries should be all obstructed together; as this is a fact which has never been clearly demonstrated, so far as I know, by any anatomical dissection. But even if that were ever possible, still I do not think it would clearly appear that the patient had died of apoplexy ‡; which must appear evident to any one sufficiently acquainted with pathology. Nor can I agree with those authors who, from having observed that sensation is extinguished by compressing the brain, and restored on removing the compression, have hastily concluded that apoplexy was to be intirely derived from mere compression of the brain. For the nature of the causes from which I have shewn it may proceed, is too various and manifold.

* Boerhaave, Van Swieten, Vogel, &c. † Willis, *De Apoplex.* & Bayle, *Tract. de Apoplex.* c. 14. ‡ Willis *apud* Bonet. *in not. ad Observat.* And. Laurentii, *Ex Controv. Anatom.* p. 803.

82. To the remote causes should likewise be

added, certain other morbid states of the body, from which apoplexy is said often to originate, namely, a bony hardness of the arch of the aorta, or diminution of its diameter from whatever cause; organic diseases of the præcordia or abdomen; a suffocating stricture of the arteria aspera; great and hard swellings growing to the neck or throat; likewise certain diseases, as obstructions of the bronchia; hydrothorax; calculi in the gall-bladder*; hysterical affections; difficult child-birth; a very acute pain occasioned anywhere by a surgical operation; frequent epilepsy; a scabby eruption; exanthematous diseases; gout; œdematous swellings of the feet, either retiring in spontaneously, or forced in; the sudden retiring of the lochia and milk in puerperal women; the suppression, or ceasing, of the hemorrhoidal or menstrual discharge, or the omitting of critical or usual evacuations; ischuria, both genuine and spurious; the drying of ulcers and issues; and so forth.

* Some accuse these calculi of causing the complaint, adducing their own observations, and those of others, who have discovered them in the bodies of such as have died of apoplexy, Vid. *Eph. N. C. cent. 4. obs. 169.* Morgagni has increased the number of these observations, both by his own, and those made by others, *Epist. Anat. Med. iv. n. 13. V. n. 6. 19.* But Weitbrecht (*Com. Litt. ann. 1734. hebdom. 9. n. 2.*), having discovered in an apoplectic body ten cystic calculi, sharp, angular, and hard, and two of them of considerable size, set about an inquiry to ascertain whether or not the apoplexy had proceeded from them;

and was forced to confess that a hiatus was left in his reasoning, which he could not take upon him to supply; nor does Morgagni himself supply it, *Epist. Anat. Med.* iii. n. 5.), and agrees in opinion with Weitbrecht, excepting in the case in which calculi in the gall-bladder induce the most violent pains, as in that described by Hoffman (*Med. Syst. Rat.* T. 4. P. 2. sect. 1. c. 7. *Thef. Pathol.* § 10.). For in consequence of spasmodic affections being excited in the abdomen, the blood is forced to the upper parts of the body, or made to accumulate there.

83. But certain things in particular are observed to predispose the body in some measure to this disease. They are named the *causæ proegumenæ*. Of this sort are, the being born of apoplectic parents, infancy, but much more frequently old age, the period of life from forty to sixty, a large head, a short neck, the sanguine or phlegmatic temperament, obesity *, an indolent life, or one too much devoted to study, too long sleeping, rich living, and dwelling in marshy situations, as also where the atmosphere is too much rarified.

* Schwenke mentions a case of apoplexy arising from the veins being too much compressed, *Hæmat.* p. 22. 23.; and Haller does the same. *Elem. Phys.* T. iv. l. x. sect. vii. § xiv.

84. When a person is thus predisposed to the complaint (83.), it is at last excited by violent exercise, excessive dancing, particularly after feasting; by the abuse of wine and spirituous liquors; by sneezing, or frequent and violent coughing; by the venereal orgasm; by the quickened motion of a very ardent fever; by the heat of a warm bath or stew; by anger, terror, fear, melancholy; or by the sudden

checking of the perspiration; by the straining of the lungs in blowing bottles, or evacuating the intestines *, or in parturition †, or in speaking loud; by crudities in the *primæ viæ*; by coarse, fat meat; by lying on the back; by the copious drinking of medicated waters, especially in advanced life, or in the case of persons of a phlegmatic temperament; by excessive repletion of the stomach; by gestation, or remarkable swelling of the uterus; by violent emetics ‡, and great and long-continued anxiety of mind. But the complaint is particularly favoured by the south and north winds blowing alternately; by a rainy winter; by hazy weather; by the rapid alternations of heat and cold; which last causes, according to Balgivi, Lancisi, and others, are most frequently the occasion of apoplexy sometimes prevailing as it were epidemically.

* Morgagni relates the case of a man's having been seized with the most violent apoplexy when at stool. Valsalva also observed the same thing. Vid. Morgagn. *Epist. Anat. Med.* xiii. n. 19.

† Among others, Adulphus saw a fatal apoplexy take place from the rupture of the *plexus choroides* in a woman, who improperly hastened her labour by making too violent efforts; *Act. N. C. T. i.* observ. 241. And I consider it as probable, that puerperal women, who suddenly die during parturition, have frequently been cut off in consequence of the same thing happening.

‡ A remark of Antonio Tita, quoted by Morgagni (*Epist. Anat. Med.* iii. n. 11.), shews the pernicious effect of the employment of emetics in persons predisposed to apoplexy, the

truth of which I myself have had too often occasion to observe.

85. There are likewise certain poisons which, in consequence of possessing the secret power of injuring the intimate texture of the brain and nerves, hurry a person, however little predisposed to the complaint, into a fatal apoplexy *. The chief of these are, opium, hyoscyomus, stramonium, cicuta, tobacco, and particularly the copious inhaling of the smoke of it †, saffron, and other narcotics; likewise certain putrid, phlogistic, inflammable, or otherwise deleterious effluvia, suddenly arising from sewers, ditches, wells, dungeons, and sepulchres; the fumes of hot embers ‡; the halitus arising from fermenting wine or beer in a close place; fixed air extricated by the admixture of various bodies; and, lastly, lightening.

* Those who are of opinion that the irritability of the heart is first destroyed by these, will not grant that apoplexy, but rather syncope, is occasioned by them.

† Tobacco is an acrid, emetic, and at the same time a narcotic plant, of the species of hyoscyomus. Whoever wishes to obtain information with regard to the injuries occasioned by using the powder or smoke of it, may consult Tissot, *Epist. Var. Arg.* p. 92. *et seq.* and Didelot, *Avis aux gens de la Campagne, ou Trait. des Malad. le plus Communes*, c. xvii. p. 119. Jo. Andr. Murray, *Apparat. Medicam.* vol. i. n. 180. p. 464. I shall mention only a few terrible instances of the effects produced by it. In *Eph. N. C. Dec. 2. ann. 10.* obs. 131. p. 222. is to be found an account of snuff taken into the nostrils in too great quantity having given rise first to coma, and afterwards

to a fatal apoplexy. In the German Journals for the year 1730, p. 179. as Didelot, just quoted, informs us, the case of a soldier is related, who was so fond of snuff as to be in the habit of consuming three ounces of it daily. On arriving at the thirty-second year of his age, he began to be frequently affected with vertigo, after which he was attacked with a most severe stroke of apoplexy, of which he died. Another man is mentioned in the same work, who, in consequence of the immoderate use of Spanish tobacco, first lost his sight, and was next seized with palsy. Borrichi, in a letter to Bartholin, makes mention of a man whose brain had become so dry, in consequence of the immoderate use of tobacco, that after death his skull, instead of brain, was found to contain a blackish, grumous substance, composed of several membranes; as if the brain had been rendered sapless, in consequence of too great an excretion of mucus from the nose being excited. Van Helmont, Tulpius, and the physicians of Breslaw, as we learn from Didelot, make mention of apoplexies originating from that cause. I need scarcely mention the well-known fact of the two Silesian brothers, who, in consequence of smoking for a wager, both died apoplectic, the one at his seventeenth pipe, and the other at his eighteenth.

‡ Portali saw two people who had been suffocated in consequence of smoke escaping through the chimney from an adjoining apartment into that in which they slept. Their face was flushed; their eyes shining; their limbs and lower jaw were in a state of relaxation; their skin soft and warm; and their abdomen swelled. In the bodies of such as had died from this cause, he found the blood-vessels of the brain full of blood, and the ventricles contained a frothy serum, which was likewise sometimes tinged with blood. The pulmonary artery, the right auricle and ventricle, the vena cava, and jugular veins, were distended with frothy blood; and the bronchia were frequently moist with a red serous fluid. The pulmonary veins, the left auricle and ventricle, and the aorta, were either empty, or appeared so. In most of them the blood was frothy,

thin, and readily passed into the cellular membrane. The epiglottis was raised, the glottis open, and the tongue swelled to such a degree, that it could scarcely be contained within the mouth. The eyes were prominent, not flaccid, but continued shining even for three days. He observed similar appearances on dissection in the bodies of persons who had been drowned and suffocated. He is of opinion, that by means of the vapour inhaled, the air is rendered incapable of distending the lungs, and, therefore, that in consequence of the expiration being too long protracted, and the return of the blood impeded, apoplexy is induced: *Hist. de l'Acad. de Scienc. an. 1775.* On the same subject consult also Carminat. *De Mortib. &c.*

86. Let us now proceed to the peculiar varieties of apoplexy, and its different degrees. The first distinction of it, which indeed has prevailed from the most ancient times (71. 72.), is into *universal* and *partial*. In the former the whole body is injured, in the latter only one side, or some particular parts. The former we name *genuine* and *exquisite*, because in it all the animal functions cease, or are interrupted; the other is denominated *spurious*, or *slight*, because in it, although they are injured, they are not so universally, and are not completely suspended †.

* See also Franc. Scardona, *De Cognosc. et Cur. Morb.* l. i. c. i. § viii. & ix. † Platner, *Art. Med. Morb. Sopor.* § 376.

87. Partial apoplexy (86.), when one side of the body is deprived of power, is distinguished by the peculiar name of *hemiplegia*: but when the parts beneath the head are affected with the complaint, it is named *paraplegia*, or *paraplexia*,

which, however, is of much less frequent occurrence. I am aware that these last affections by some are considered as species of palsy, not of apoplexy; as if palsy were another kind of disease, intirely different from apoplexy. But they seem to forget the opinion which Celsus, Aretæus, (71.), and, among the moderns, Pitcairn *, entertained of paralyfis, as these authors do not separate it from apoplexy, but consider it as being nearly allied to it. Nor do those persons seem more deserving of credit who are for separating palsy from apoplexy, on account of the cause of apoplexy being contained in the brain, while that of palsy is situate in the nerves that lie out of the brain. For they pretend not to know that the loss of sense and motion of one side, or of particular parts, which constitutes real paralyfis, may likewise immediately arise from a morbid condition of the brain. Who at this time can be so ignorant of anatomy as not to know, that hemiplegia is generally owing to an injury sustained by the opposite side of the brain, when, as Haller remarks †, it was a fact perfectly well known even to Hippocrates, and, as Hoffman observes ‡, to Aretæus and Cassius, the most ancient medical writers, not to mention modern anatomists intimately acquainted with the subject || ? For most of the fibres of the medulla of the brain and cerebellum which arise from the right side seem to lead to the left, while those

which proceed from the left seem to go to the right side of the body ; so that the nerves both proceeding from the brain and *medulla oblongata*, in the course of their distribution, decussate each other. This, however, cannot be asserted of all the species of paralysis, as there are many arguments for supposing, that certain nervous fibres, proceeding from one hemisphere of the brain, are not distributed to the opposite side of the body, but are stretched along the same side. Hence I have sometimes known a hemiplegia occurring from the brain on the same side being injured, the proof of which is afforded by Valsalva himself, and Morgagni, who were otherwise very keen advocates for the decussation of the nerves §.

* *De Apoplexia.*

† *Physiolog.* T. iv. p. 222. *ed Venet.*

‡ *Comment. in Galen, De Ufu Part.* l. 10. c. 12. || Morgagn. *Advers. Anatom.* vi. *animad.* 84.; and before him Valsalva, Lancisi, and afterwards Mollinell, Platner, Ludwig, and a good many others. But Haller in particular claims our attention. In his *Elem. Phys.* T. iv. p. 221. n. 1. he observes, that there are very numerous instances of wounds and morbid conditions of the brain giving rise to affections of the opposite side of the body. A palsy of the right-hand was induced in consequence of an effusion of pus having taken place in the left side of the brain : Morgagn. *De Sed. et Caus. Morb.* ii. p. 288. An instance of the right side and arm becoming paralytic from morbid softness and putrefaction of the left thalamus of the brain, is mentioned by the same author, p. 82. He gives us another account of a palsy of the right side proceeding from a collection of water in the left ventricle, and the erosion of the brain, in p. 83.; and in p. 21. he mentions a similar instance occasioned by blood effused in the same situa-

tion. And in p. 83. we find, that a morbid state of the cho-roid plexus of the left side gave rise to a paralytic affection of the opposite side. An account also of a palsy of the right side of the face, occasioned by a collection of serum and hydatids, is mentioned in *Mem. des Sçav. Etrang.* iii. p. 452. Clossy, p. 6. gives an account of palsy of the opposite side of the body, proceeding from an effusion of blood between the membranes of the brain. For an account of a hemiplegia of the opposite side, occasioned by a wound in the eye with a sword, see *Phil. Transf.* vol. liii. But not to be prolix, for a careful account of similar cases consult Haller, T. iv. lib. 10. sect. vii. § xxix. || *Epist. Anat.* xiii. n. 19. & 25. and *Epist. Anat. Med.* ii. n. 16. Many such instances are to be found in Haller, *Elem. Phys.* T. iv. l. 10. sect. vii. § xxix. p. 223.

88. Planc observed this to happen principally in injuries of the cerebellum, in which he contends, that on this account it is not the opposite but the same side of the body which becomes paralytic *. But it is to be observed, that one side is not always paralysed; for it is frequently convulsed †, as I have several times observed, when the irritation prevails over the compression. Sometimes, likewise, while the opposite side becomes paralytic, in consequence of the injury of the brain, the corresponding side is affected with convulsions and clonic spasms ‡: which may be easily explained, if we suppose that the origin of the nerves, which go to the affected side, is irritated, at the same time that that of the nerves, which are distributed upon the opposite side, is compressed, in consequence of which the parts, to which these nerves belong, become paralysed.

* *Lettera Sopra un' Apostema del Cervelletto.* † Hippocr. aph. vii. *et de Vulner. capit.* Schouten. *Gewondte Hoofd.* p. 64. Scultet. obs. 17. Bartholin. hist. 2. cent. v. Bouvart. *Hist. de l'Acad. Roy. des Scienc. de Paris* 1700, obs. 19. Salmuth. l. i. obs. 17. ‡ Horst. l. ii. obs. 1. Lorry, *Mem. des Scav. Etrang.* T. iii. p. 375. ex Haller. l. c. T. iv. p. 223.

89. Nor is every injury of one hemisphere of the brain always sufficient to occasion the paralysis of one side of the body; for, as some fibres proceed from all parts of the medulla of the brain, it does not happen in consequence of one side of the brain being in some measure compressed, that the nervous influence is intirely extinguished in the same or opposite side of the body, because this may sometimes be sustained by the fibres proceeding from the intire hemisphere, and distributed over the whole body, without palsy necessarily following. This appears particularly when both hemispheres have been injured without occasioning the paralysis of either side. For in such a case, so great an influx of the nervous power may still take place from the brain to the different parts of the body as to sufficiently keep up the vigour and sensation of them all. But when it happens that one side is paralysed, and the physician, on being called, cannot now distinguish which side was first affected, on account of the whole body appearing void of sense, he ought in that case to inquire of the domestics and attendants upon what side the patient lay, for it will prove to be the side which was first affected, and

the injury will generally be found existing in the opposite side of the brain.

90. From the investigations of anatomists it appears to be pretty well ascertained, that in consequence of certain parts of the brain being affected, certain parts of the body become paralyzed. In consequence of the compression, or other morbid affections of the thalami of the optic nerves, arises *amaurosis*, or *gutta serena*, namely, a paralysis of the optic nerves and retina *. Willis has remarked, that if the *corpora striata* be in any manner injured, the legs become deprived of sense and motion †. Nor is it irrational to suppose, that, according to the various parts of the *corpus callosum*, or *medulla oblongata*, which are injured, sometimes one, sometimes another pair of nerves may become affected, giving rise to morbid conditions in various parts of the body: which is evinced particularly in that species of hemiplegia which does not prove violent at the beginning, but is secondary, namely, that in which the exquisite and universal apoplexy sometimes terminates, in consequence of the cause which oppressed the corpus callosum ‡, or centre of the brain, being directed rather to one side. But if the cause, as the interruption of the flow of the blood in the veins at the base of the brain, compress the nerves proceeding from thence to the tongue; it generally occasions aphonia and restlessness, as Lancisi remarks ||. Nay, if it

descend to the base of the brain and cerebellum, overwhelming all the nerves that proceed from thence, and still more if it be propagated to the origin of the cervical nerves, from which the greater part of the cardiac nerves proceed, life itself, in consequence of the motion of the heart and thorax being completely interrupted, must necessarily be immediately extinguished. Hence Morgagni (*Epist. Anat. Med.* iii. n. 25.) seems to deserve notice, when he observes, that we may conjecture that the brain in apoplexy is principally affected, from the respiration being much injured, from the fæces being passed unconsciously, and from the livid colour of the face and lips. But if it pass into the tube of the spine, overwhelming particularly the superior vertebræ, it is almost an universal opinion that paraplegia is occasioned §.

* Platner, l. c. Ludwig, l. c. † *De Anima Brutor.* c. ix. p. 106. ‡ Peyronie, *Mém. de l'Acad. Roy.* ann. 1741. || *De Subit Mortib.* l. i. c. viii. § ix. x. § Platner and Ludwig, l. c. and Morgagni, *Epist. Anat. Med. Cit.* We find in Boerhaave (*Pralect. in Instit.* § 401.) the description of a paraplegia first arising from an effusion of serum in the beginning of the spine, next terminating in apoplexy, from the serum being diffused all the way to the cerebellum. Duverney mentions a similar case, as may be found in Duhamel *R. Scient. Acad. Hist.* l. iii. sect. v. c. 2. n. 1. Tissot observed a case of true paraplegia, which had taken place in a vigorous man, in consequence of a mass of hard earth having fallen upon the back of his neck, while he was engaged digging in a pit. The surgeon was not able to discover any luxation or fracture in the part. *Epist. Med. Var. Arg.* p. 97.

91. It happens at times that only some muscles become paralyfcd, as thofe of the face, eye-brows, arm, tongue *, pharynx, œfophagus, ftomach, inteflines, uterus, bladder, and anus, of which we fhall fpeak more at large hereafter in the proper place ; and hence various fpecies of *flight* or *partial* apoplexy, or, as they are generally named, paralyfes, take place. Of thefe, however, there are two kinds, according to the different feats of the caufes, one proceeding from compreffion, fuppuration, ulceration, wounding, congestion, or other injuries of the brain or fpinal marrow, from whence all the nerves are given out † ; the other, proceeding from fimilar caufes, affecting the fheaths of the nerves, ganglia, and neighbouring parts, or compreffing, ftraitening, obftructing, or in any other way injuring the nerves themfelves in their courfe. Under this clafs fall various kinds of tumours growing to the nerves, very frequently dropfy of the cellular membrane with which the nerves are furrounded, fracture, luxations, exoftofes, and contufions of the vertebræ and other bones, wounds, metaftafes, poifonous effluvia, efpecially metallic ones, as thofe of arfenic, lead, cinnabar, and mercury, and other noxious, minute, and penetrating bodies, or various kinds of vitiated fluids reaching the nerves, or their fheaths.

* In the Paris Medical Journal for June 1782, p. 547. is to be found an account given by Majault of a paralysis of the tongue and inferior extremities, which had been excited without either plethora, or dyspepsy, or any other cause, merely by cold. It was easily removed within six days, solely by the use of an infusion of arnica flowers, to which he added volatile alkali, in the proportion of twelve drops to the pint.

† Palsies supervening upon injuries of the spinal marrow do not take place in the opposite side, but upon the same side in which the accident happens. See Haller, *Elem. Phys.* T. iv. l. 10. sect. vii. § 29. p. 223. where the testimonies of Turner, Riolan, Salicet, and those from the *Edinburgh Transactions*, are quoted.

92. But as, independent of the nervous power, soundness and strength of the muscular fibres, and their inherent irritability, are necessary towards the performing of muscular motion; it must be confessed that sometimes, if not *genuine*, at least *spurious*, or *imperfect*, paralysis, which would probably be named with more propriety *immobility*, is observed to take place, merely in consequence of the texture of the muscular fibres being relaxed, or in consequence of the weakened coherence and diminished irritability of the elements composing them, or in consequence of congestion of the cellular texture, or œdematous swellings, or obstructions, as well as from the influx of blood through the arteries into the muscles being impeded, which last seems to be requisite alike for exciting or keeping up the power of the muscles. This morbid condition is observed to take place principally in scorbutic

people, in those with bad fluids, after wounds, and in bodies exhausted with excessive venery.

93. In every species of palsy certain stages are usually observed : for there is either a total privation of all sense and motion, when a complete *anæsthesia* takes place ; or the motion of the part only ceases, while the sense remains ; or there is a loss of sense, but not of motion. Each of these is named *imperfect paralysis*. Sometimes acute pains are occasionally felt in the part affected with numbness and deprived of motion ; which phenomenon seems scarcely reconcileable with its paralytic insensibility. We very rarely fall in with the species of hemiplegia in which the motion on one side is lost, while the sense remains, or in which the sense of the other side is lost, while the motion remains. An account of this kind, however, has been transmitted to us by Heister *. It is likewise a rare occurrence to meet with the species of palsy mentioned in the third place ; some instances of it, however, occasionally occur in the works of practitioners. Burdot not long since related the case of a woman of sixty years of age, who had been seized with a hemiplegia of the right side, attended with the loss of sense and motion, the latter of which, however, returned, though not the former †. I myself, who have frequently observed this, a few years ago was called to a lady of rank labouring

under hemiplegia, who, three months after being affected with the complaint, in consequence of the suppression of the catamenia, recovered the motion of her side, but not the feeling of it. When the feeling in paralytic limbs remains without the motion, some suppose that they sufficiently explain the fact by alleging, that less of the nervous influence is required for sensation, than for motion. But, on the other hand, when the motion remains or returns, while there is no sensation present, how will they explain the phenomenon? One will probably approach nearer to the truth in asserting, that the nerves assigned to muscular motion have regained their power, but not those which go to the skin †, or, which comes to the same thing, that the nerves proceeding from the spinal marrow have been relieved, while those are not which in a great measure are supplied from the trunk of the intercostal nerve.

* Anæsthesia is now employed to signify the privation of all sense, both internal and external; and hence it is named in Latin *stupor*. At present this word is employed by nosologists to denote a particular disease, which they consider as differing from paralysis no less than from *catalepsis* and *ecstasis*. And although I observe on what ground they allege this distinction rests, I have not been led to suppose, that a particular species of disease should be made of it, because those species of anæsthesia of which they make mention may be easily referred to palsy, or catalepsy, or ecstasy, at least of the spurious kind, as I shall readily shew in the chapter on catalepsy and ecstasy.

† *Ephem. N. C.* cent. ii. obs. 196. † *Act. Helvet.* T. vi. p. 191.

|| Rayner. Bonaventur. Martini, Professor in Pisa, has recourse to a similar explanation. In *Instit. Med.* T. i. c. v. p. 59.

94. If a particular part only becomes affected with numbness, and altogether loses the feeling, it is commonly said to labour under *paresis*, a particular species of imperfect and spurious palsy. But many authors employ this term to denote the paralysis of the lower extremities only. Others, again, employ it to signify that atony of the intestines, which generally comes on spontaneously in the *colica Pictonum*, or *convulsive* colic, or succeeds to the employment of narcotics; or to denote the paralysis of the arms, which supervenes on this colic. Aretæus, moreover, observes that *paresis* takes place when the bladder becomes paralysed, and is no longer capable of emitting or retaining the urine*.

* *De Causs. et Not. Diuturn. Affect.* l. 1. c. vii.

95. Hitherto I have been speaking of the varieties of partial apoplexy. It remains for me to say something of those in common to both the partial and universal species of the disease. It is therefore divided, according to the nature of the place primarily affected, into *idiopathic* and *sympathic*, that is to say, according as its cause exists immediately in the head, or in any other part from whence it may exert its force upon the

head. Likewise, with respect to the cause, it is either of the *sanguineous*, or of the *serous*, or *phlegmatic* species ; or it is of the species named *atrabilaris*, or *metastatica*, arising particularly from the gout, lochia, or milk being suddenly forced in ; or it is of the kind named *traumatica*, *temulenta*, *hysterica*, *epileptica*, *convulsiva*, *scorbutica*, *venerea*, *febrilis*, *polyposa*, *præcordialis*, *mephitica*, *narcotica*, *halituenta*, *fulminea*, and so forth.

96. Moreover, in the *genuine* or *exquisite* species of the complaint (72. 86.) certain degrees derived from the morbid state of the respiration, pulse, and heat, are generally considered ; on account of which it is commonly distinguished into *slight*, *violent*, and *very violent*. But Galen *, to whose opinion some authors still adhere †, extends these degrees to four, including that which is *very slight*, simply *slight*, *violent*, and *most violent* ; although these distinctions seem to be so nice as to escape observation in the course of practice.

* *Comment. in Coac. Prænot. text. 476.*

† Molinar, l. c.

97. That species is named *most slight*, in which the respiration is found to be freer, the pulse regular, and the heat of the face and body almost natural. That species, again, is named simply *slight*, in which the respiration and pulse are irregular, or intermit, in which an alteration in the heat takes place, and the body becomes somewhat cold. But when the breathing is very

difficult, the pulse hard, and very variable, while the body becomes cold, these symptoms constitute the *violent* species. Lastly, we say that the *most violent* is present when the breathing is accompanied with snoring, or, in place of it, the respiration is not observed to go on, and no pulse is perceived, while the face puts on the cadaverous appearance, and the patient is all over bedewed with a cold sweat, accompanied with frothing at the mouth, and complete relaxation of the sphincter of the anus and bladder. With Morgagni *, however, I have observed, that the morbid state of the respiration indicates various degrees of severity of the complaint, but, notwithstanding of this, that the most violent species of the complaint may sometimes occur unaccompanied with this symptom. For the respiration has at times appeared good and regular during the presence of the most violent and fatal species of the complaint; which is confirmed by the observations of Valsalva and Varetti. It appears, moreover, very probable, that in the *very slight*, or *simply slight* species of the complaint, the brain, properly so called, is more affected; while in the *violent*, or most violent species, the cerebellum, or medulla oblongata, or superior part of the spinal marrow, are principally injured.

* *De Sed. et Caus. Morb.* Epist. ii. n. 13. 14.

THE DIAGNOSIS.

98. AN attack of apoplexy may be foreseen, not only from the symptoms already enumerated in par. 82. 83. 84. 85. but likewise from others, the enumeration of which I shall immediately subjoin; and this is a matter of the utmost consequence to medical men, whose business it likewise ought to be to preserve the health of mankind. It is, therefore, said to be threatened, if a person, while sleeping profoundly, is seized with night-mare *, and grinding of the teeth, or, contrary to custom, snores violently; if the person is distressed for some time with a severe headach, without any manifest cause, exciting nausea or vomiting, and yielding to no remedy; if the memory, which was formerly retentive, is suddenly impaired, or becomes confused, and degenerates into a state of oblivion; if the head becomes heavy, the mental faculty dull, and the person is apt to fall into profound sleep; if *muscæ volitantes* appear, without there being any reason to apprehend that amaurosis or suffusion have preceded; if the *tunica albuginea* is red, and tears flow spontaneously; if the patient, while in the erect posture, or stooping, becomes affected with vertigo when the stomach is not full, and it frequently recurs; if old people, who, in consequence of a morbid state of the brain or optic

nerves, have lost their sight, during the night-time sometimes perceive flashes of light before their eyes. But if this happens during the winter solstice, there is reason to apprehend that a fatal apoplexy will come on in the ensuing spring at farthest. If a person, who has neither been indulging in wine nor tobacco to excess, while engaged in reading, sees the lines double or obscurely, contrary to what used to be the case ; if the ears ring with a buzzing noise, which has neither been occasioned by living in damp situations, nor newly plaistered walls, nor any other evident cause ; if the speech becomes imperfect ; if the words are pronounced slowly ; if confused answers are returned ; if the mouth becomes distorted ; if unusual grief or anxiety come on ; if the difficulty of swallowing increases, or when a person wishes to swallow, a cough is excited, although in the mean time neither any inflammation nor tumour obstructs the fauces, and no hysterical or hypochondriacal affection is present ; if fainting frequently comes on ; if one or other side of the body is occasionally affected with numbness, which cannot be derived from the compression or swelling of parts, or from the effects of gout, rheumatism, or scurvy ; if the feeling becomes less acute ; if the hand, which was formerly quick in its motion, becomes less prompt in writing ; if fatigue is quickly occasioned by gentle walking ; if the feet totter, and are as it were dragged along ; if

the limbs are affected with sleeping; if after a wound or contusion in the head, rigor, or long-continued shiverings during the presence of fever, or *catoche*, attack the patient †. These and similar symptoms, must frequently occur, if not all, at least some of them, when the approach of apoplexy is announced: although it sometimes attacks people in perfect health without being preceded by any symptom.

* Incubus, or ephialtes, is a particular difficulty of breathing which occurs during sleep, accompanied with a sense of weight pressing upon the breast, under the appearance of a spectre, or frightful object, from which the person is relieved on at length awaking, after much groaning and struggling, nothing farther remaining but a palpitation of the heart, and pretty frequently the motion of the diaphragm being accelerated. Young people are generally more liable to this complaint. Various causes, however, induce it; as, plethora, a full stomach, worms, emotions of mind, sometimes the paroxysms of intermitting fevers, hydrocephalus, and other morbid states of the brain, and particularly lying on the back after a full supper. But apoplexy is preceded by that species of it which originates from a quantity of blood or serum collected in the brain, medulla oblongata, or beginning of the spinal marrow. It ought not to be treated lightly; although it seldom falls under the care of a physician as a disease: I therefore think that it ought rather to be referred to general pathology. For the account given us by Cælius Aurelianus, (Tard. Pass. l. 1. c. 3.), from Silimachus, one of the followers of Hippocrates, concerning the incubus which prevailed at Rome, I do not find confirmed by the observation of any other author.

† Concerning *Catoche*, or *Catalepsy*, we shall treat hereafter

in an exprefs chapter. It is an affection in which the patients remain ftupid and ftiff, and, as it were, in a ftate of *ecstasy*.

99. But when the complaint commences its attack, we ought to carefully confider whether it be of the *fanguineous*, *ferous*, or *convulfive* fpecies. For I have refolved to treat feparately of thefe three alone, induced by the authority of the moft experienced practitioners, becaufe almoft all the other fpecies of the complaint may be conveniently referred to thefe three. And, firft, the *fanguineous* fpecies is indicated by the patient's having lived richly; by his having fpent an agreeable and eafy life; by his being in his prime, and of the fanguine temperament; by its being the fpring-time, by the weather being warm and damp; and by evacuations of blood having been fuppreffed. It more frequently comes on without being preceded by any fymptoms, particularly if it arifes from the rupture of any of the veffels of the brain, or from any violent caufe propelling the blood to the head, in which cafe an acute, fudden, and violent headach is frequently the fore-runner of the complaint. After the attack in this fpecies the face becomes red, the veins of the eyes and temples fwell, the eyes remain half-open, fhining, fixed, and prominent. The refpiration is frequently freer, fometimes accompanied with fnoring, the pulse generally great and full, at other times it is more violent, as in inflammation; as the difeafe advances it becomes

languid and flow ; the respiration is gradually diminished, and, when the apoplexy is very violent, it is accompanied with excessive snoring, grinding of the teeth, convulsive motions, sympathetic vomiting, and is at length succeeded by death. Some patients, when they fall down, shriek out. At other times, at the very moment of time when they are struck, a hemiplegia comes on. The physician, however, ought to be on his guard against immediately inferring, merely from the paleness of the face, or the patient's advanced life, that it is not the sanguineous species. For not unfrequently in old men who have died of apoplexy, with a pale face, blood has been found effused within the brain, in which case the paleness has been the effect of the deficient *vis vitæ*, and not of want of blood.

* Molinar, l. c.

100. As the sanguineous species of apoplexy receives its name from the quantity of blood distending the vessels of the brain, or effused within its cavities ; so does the serous species derive its name from serum or phlegm, or water, filling or inundating the same vessels. And although it does not always happen that water, serum, or phlegm, found within the skull in persons who have died of apoplexy, can be considered as the cause of the complaint, because sometimes apoplexy proceeding from another cause is followed by the effusion of serum, as an effect ; it appears from certain

observations, however, that it is sometimes occasioned by a collection of water (76.). Nor is it always necessary that this water should be collected in great quantity; but it seems to be sufficient, that though small in quantity, it is of an acrid and irritating nature. For, as Morgagni * supposed, the brain, by means of its acrimony, if not convulsed, may be so irritated or corroded by it, as to give rise to apoplexy. But if the acrimony be not present in it, and the quantity of water be small, it does not seem of itself sufficient to induce apoplexy, unless other causes, both internal and external, concur with it, powerfully and quickly overwhelming the brain.

* L. c. *Epist.* iv. n. 1. 5. 27. *et alibi.*

101. I do not deny, however, that serum or water, even in small quantity, may sometimes be sufficient for inducing apoplexy, provided it be all at once accumulated in the ventricles, or suddenly effused about the brain under the meninges. For then, not the quantity, but the unusual and sudden violence of the compression or distension, deserves no small consideration. On the other hand, when the collection of serum or water takes place by slow degrees, it is nothing new for the brain to be overwhelmed with a great quantity of fluid without apoplexy being occasioned. This appears chiefly in hydrocephalus, in which it is a well-known fact that the

brain can easily bear a flow and gradually formed pressure or distraction.

102. But that the apoplexy proceeds from an effusion of serum or phlegm, is indicated by the phlegmatic temperament, and by a cachectic and pale habit of body ; by old age ; by the causes which increase the quantity of watery or sluggish fluid ; by its accession not being so sudden as in the *sanguineous species* ; by the paleness and swelling of the face ; by the depression of the veins ; by the flaccidity and coldness of the limbs ; by the impeded respiration ; by there being greater snoring, and more of the hissing sound ; and, lastly, by the pulse being depressed, slow, small, rare, variable, irregular, and intermitting. It is frequently preceded by vertigo, particularly in the afternoon and at night, by torpor, dulness, faltering of the tongue, and deep sleep. Moreover, those who are seized with this complaint are not immediately deprived of the use of their tongue, they sometimes open their eyes and mouth, and discharge a vast quantity of saliva. But, to omit no particular, I may remark, that Tissot * observed, that in this species of apoplexy the respiration is less laborious, and that the patient sometimes vomits more easily and abundantly. In which respect how far he approaches to the truth, I shall leave to the decision of others.

* *Avis au Peuple sur la Sante*, T. i. c. ix. *De l'Apoplex.* § 149.

103. It remains for me to treat of the symptoms of the *convulsive* or *spasmodic* species of apoplexy, or that which derives its origin from spasms (95.). It is mentioned by Sydenham *, Hoffman †, Molinar ‡, Tissot ||, and others, although it has been overlooked, or purposely neglected by some. Those persons are liable to it who have for a long time laboured under spasms of the abdomen, who are troubled with colic pains, hypochondriasis, or hysteria, calculi in the gall-bladder, costiveness, or violent or sudden emotions of mind, as rage or terror; who are affected with epilepsy, or in whom the customary hemorrhoidal or menstrual discharge ceases, or who are afflicted with spasms from anomalous gout. It is generally previously announced by weakness of the external senses, by vertigo and dimness of sight, by heaviness, trembling, or torpor of the joints, and by severe and long-continued hysterical and hypochondriacal affections. Immediately before its attack the extremities become cold, the skin dry, the face and eyes red, the carotid arteries throb with greater violence and frequency, and in the others there is a great and hard pulse. Since, therefore, in women it frequently commences with hysterical and spasmodical affections, or in men with complaints in other parts, and particularly in the lower part of the abdomen, it is also named *hysterical* or *sympathetic*. As it arises from spasms, it is sometimes

flight and easily cured, because when it proceeds the length of beginning to extinguish the sensibility, the spasms must necessarily immediately become relaxed, and cease; sometimes it terminates in hemiplegia, or at least palsy of some part; or at the very beginning assumes the appearance of partial palsy, which does not remain very long; sometimes also it is violent, which, however, is of less frequent occurrence, and quickly terminates the patient's existence, like other severe apoplexies §.

* In *Dissert. Epist.* † *Med. Syst.* Part ii. sect. 1. c. vii.
§ ix. ‡ L. c. || *Epist. Var. Arg.* p. 88.

§ Tissot mentions two cases of hysterical or convulsive apoplexy, in the following terms: "A handsome young woman of rank, about twenty years of age, a few months before, as I learnt, in another city had very happily got over the small-pox, which were extremely mild, and had afterwards been repeatedly purged. From that period she had been liable to hysterical affections, and, in particular, for about two months, had complained of severe headaches, and remained low spirited. As the regular practitioner who at first attended her was at a distance, she was committed to the care of an empiric, who had formerly gained considerable reputation, by whom she was treated with various evacuant and refrigerant remedies, but to no purpose. All the symptoms grew worse; at length, the headach becoming intolerable, she suddenly lost the use of her speech, being only able to point out the seat of the pain with her finger. I did not see her until just an hour before her death: her face was red; her pulse intermitting, irregular, very small, and very bad; there was the greatest anxiety; and at length she suddenly died. Her parents were desirous that her head should be opened: I was present on the

occasion, merely as a spectator. No injury whatever was discovered. It is a matter of doubt whether or not any morbid appearance would have been observed on opening the breast. Probably the following case may afford a presumption of the contrary. Upon the same year a girl of eighteen was seized with a suppression of the menses, in consequence of fear; after which she frequently fell into fainting-fits, which the surgeon at that time living here endeavoured to remove by various means. At length, after a variety of complaints, which eluded all the remedies employed for six or seven months, she was seized with profound sleep, which he endeavoured to overcome, but in vain. Every remedy proving fruitless, her parents waited upon me three days after she had been seized with the deep sleep. I found her sleeping, and not to be roused by any noise, or irritation. According to my practice in similar cases, I enjoined perfect quiet. Twelve hours afterwards she awoke quite recovered, but very weak. On accurately weighing all the symptoms, and finding from every circumstance that there was some local injury, but no fever, I prescribed for her strengthening remedies, combined with antihysterical ones. They succeeded to my wish; but in consequence of her having again been alarmed a few days after, she was attacked with such dreadful anxiety, accompanied with excruciating headach, constant sickness, and terrible convulsions, that I have seldom beheld a complication of more shocking symptoms. I first allayed the severity of the disease by a single dose of opium, and afterwards gradually overcame it by the remedies already mentioned: but the patient's strength being broken by the long duration of the disease, and particularly by the remedies employed, left little hope of a perfect recovery. While she was eating a bit of pudding, the anxiety returned, and she was carried off within a minute's time. Her parents, in consequence of receiving money for it, were induced to give their consent to the opening of the body. The heart was found probably somewhat larger than natural, soft, and pale. Did this proceed from the frequent fainting-fits to which she had been liable?

In other respects I never saw a body more free of any morbid taint. Was her death occasioned by a paralysis or convulsion of the heart? Without doubt all the muscles in hysterical women very readily and frequently become relaxed; and why may not the heart? I shall therefore believe that it proceeded from this cause, until I can discover some one more likely to have occasioned it." *Epist. Var. Arg.* p. 80. 89. 90.—The account given by De Haën, to which Tissot refers here, of a sudden death which took place without any discoverable morbid condition in any part, and which was, therefore, ascribed to a spasmodic affection of the nerves, is as follows: "A young woman came to our hospital, who had been for many years troubled with a severe palpitation at the heart, panting, anxiety of the præcordia, and frequent cough, and had tried a variety of remedies without experiencing any relief. As she had been a couple of days without any passage in her belly, I caused an injection to be administered, and was preparing other things for her relief, when she was suddenly carried off. On dissecting the body, the vitals were found to be of a perfectly healthy appearance. Nor was there any thing in the whole body, either in the solids or fluids, which could have been considered as faulty, excepting a double, but very slight, adhesion of the lungs to the pleura, and three lumbrici in the ileum. But it is a fact well known to anatomists, that thousands of people live in the enjoyment of perfect health with these lumbrici, and much more extensive adhesions. So that we may conclude with Boerhaave, § 826. "Its cause is generally an inordinate and violent influx of the vital spirits into the villi of the heart," &c. De Haën, *Rat. Med.* P. iv. p. 36. 37.—To these ought to be added, a remarkable instance of convulsive apoplexy, which succeeded to a relapse of epilepsy, accompanied with convulsive motions, and, lastly, tetanus, in a girl of nineteen years of age, and which proved fatal in twenty-four hours. On dissection, Boucher could not discover any thing to which apoplexy could be ascribed. *Récueil d'Observat. de Médic. &c.* T. 47. p. 77.

104. As convulsive or spasmodic apoplexy, therefore, may arise sometimes from causes situate about the origin of the nerves, sometimes from those existing in other parts remotely situate, it appears that there are two kinds of the complaint, namely, an *idiopathic* and *sympathetic* one. With respect to the species succeeding to spasms originating in the brain or cerebellum, and their appendages, as in it the origin of the nerves is idiopathically affected, it is easy to conceive in what manner it is occasioned, namely, by the same causes in consequence of which the spasms were produced, pressing upon, irritating, or in any other way injuring the brain, in the full extent of the word. But it is a very difficult matter to explain the origin of that species in which the brain is only sympathetically affected; for in what manner the spasms which arise in the viscera, as those of the lower part of the abdomen and elsewhere, can act upon the principle of the nerves, and occasion apoplexy, is a matter involved in very great doubt, as physiologists contend that the dura mater possesses neither sense nor motion, and that the nerves are totally void of irritability, or any contractile power.

105. But, if I were allowed to conjecture, I should suppose, that the manner in which spasms occasion apoplexy is not uniform. In the first place, the motion of the blood in the parts which

are spasmodically affected, may not only be impeded, but also that portion of it which was to have passed thither may be turned elsewhere, and forced to the brain in greater quantity, and with greater violence, than is proper, filling, distending, and sometimes even bursting the vessels; which will happen the more readily the more difficultly the blood returns from the head, in consequence of the greater veins being compressed and straitened by the spasms of the neck, diaphragm, thorax, and præcordia. Hence it is evident, that apoplexy will arise from plethora of the vessels of the brain, which may be easily resolved, if the spasms are quickly relaxed in consequence of the sense of the nerves becoming languid; or, on the other hand, if the vessels are burst, and pour out their blood, that it will speedily terminate in death. But if it be supposed that both of these species are properly referable to the sanguineous or serous one, I shall not dispute the point.

106. But the slight or partial apoplexy, or paralysis, which is left by spasms in any particular part, comes more properly under the head of the spasmodic or convulsive species. For it seems to arise from the nerves which go to a particular part being compressed by the violent contraction of the muscular fibres, or muscles surrounding them. That palsy, however, is of short continuance. For, although the nerves are resolved, in a short

time, in consequence of the spasm being relaxed, if they have not suffered great violence, both they themselves, and the affected part, intirely recover their sense and motion, as frequently happens in severe convulsive affections. If, in consequence of the optic nerve being compressed by a spasmodic affection of the muscular fibres which nearly surround it *, a person is deprived of sight, the sight is recovered on the relaxation of the spasm taking place ;—a fact which I have more than once had an opportunity of observing.

* I am aware that the existence of such fibres is denied by some modern anatomists ; but it is an indisputable fact, that the muscles which move the eye are situate so near the optic nerves, that, in consequence of the former becoming spasmodically affected, the latter may also become constricted and compressed.

107. Indeed almost every species of apoplexy, named *convulsive* or *sympathetic*, might be explained in this way ; if a particular species of it, in which the brain itself, on account at least of the consent of the nerves, seems to be affected without its suffering any of the injuries above mentioned, and shewing no mark of the disease after death, did not leave some obscurity, and require another explanation. This happens particularly in hysterical women, infants, and children, who have died of apoplexy in consequence of convulsive diseases, the fomes of which is si-

tuates out of the head ; as appears from the history of medical cases, and as I myself have already hinted (75. 103.). For every body knows, that from causes lurking in the stomach and intestines, the brain is so affected, that the whole body, in consequence of it becomes convulsed, or delirium or stupor come on, or the patient is overwhelmed with deep sleep : but that the convulsive motions, delirium, stupor, or lethargy, cease on the material cause being expelled, or otherwise rendered harmless, by means of a cathartic. Why, therefore, may not apoplexy be occasioned by similar causes, acting more violently, and returning more frequently, without any discernible mark being left in the brain ? But in what manner spasms, and the consent of the nerves, ever occasion any immediate violence to the brain, remains to be investigated.

108. Some derive the complaint from the excessive derivation and exhaustion of the nervous fluid, by means of irritating causes existing somewhere in the system, in consequence of which the brain is rendered senseless and exhausted. Others affirm that the spasm is communicated, by means of the nerves, to the medulla of the brain, of the possibility of which they are persuaded, notwithstanding that repeated experiments have demonstrated that the nerves are destitute of irritability ; and thus they conceive to themselves that the sentient and moving

principle is extinguished. But how little these hypothesis should be trusted, and how far admitted, will appear partly from physiology, and partly from the remarks already delivered. Some also, to remove every difficulty, do not hesitate to suspect, that in hypochondriasis and hysteria something is transfused into the blood from the recesses of the lower part of the abdomen, or from the uterus, when the cause of the spasms is situate in them, by which it is rendered thick, and so coagulated as to become stagnant in the minute vessels of the brain. Although I might grant without any dispute that this may sometimes happen, still the apoplexy occasioned by it would more properly be named *metastatica* than *convulsiva*; and certainly symptoms of such a metastasis in the brain or its vessels ought not to have been wanting.

109. For which reasons others, not to shun the difficulty, being convinced that in the convulsive species of the complaint, not only the functions of the brain are destroyed with the life, but also that occasionally no morbid condition is discernible in it on dissection, persuade themselves that in consequence of the spasms the passages of the blood may become straitened and obstructed, preventing its gaining admission to the brain, or at least that the motion of the heart is intirely suppressed, (to which Tissot *

seems to incline) ; or that the heart itself, (which is another conjecture of his), becoming paralytic, ceases to act, thus cutting short the patient's life. But when we consider the passages which conduct the blood to the brain, we can scarcely suppose it possible for them to be intirely obstructed by means of spasms. Although we should grant, however, both that these passages are obstructed, and that the motion of the heart is interrupted by a spasm, as they suppose, it would not appear perfectly certain whether apoplexy or syncope constituted the primary disease. For it is no new thing for women who are subject to violent convulsive affections, in consequence of this to be cut off by a sudden death or fatal asphyxia. If, again, it be alleged, that a paralysis of the heart has occasioned the patient's death, as he suspects in the second place, it remains to be still a subject of inquiry, whether this palsy of the heart be idiopathic, or occasioned by sympathy in consequence of the function of the brain being injured. If the first takes place, death will be occasioned by syncope ; if the latter, by apoplexy. On this last species, therefore, still hinges the force of the proposed investigation, namely, in what manner in the sympathetic apoplexy, which has occasioned death without any conspicuous and visible faulty condition, the brain becomes affected by consent with other parts, and what the nature of its in-

jury is. We may conjecture that one of two things takes place, namely, that either the spasmodic contractions are propagated to the minute arteries of the brain,—for it is not inconsistent with reason to suppose that they are possessed of irritability †,—in such a manner that, in consequence of their becoming spasmodically affected, the connection between the *cortex* and *medulla* of the brain, and between the medulla and other parts of the body (75.), is cut off; or that the extremities of the nerves are so intimately affected by the causes inducing the spasm, that their origin also, namely, the brain, cerebellum, and medulla oblongata, receives a similar injury in their very delicate, elementary structure, on account of which such a subversion of the fibres, or other unnatural change in them, takes place, by which the exercise both of sense and motion may be prevented ‡. The nature and action of the nerves being still unknown, or in a great measure involved in absolute obscurity, do not allow us to proceed farther.

* L. c. *supra* par. 103. n. ii.

† See the observations delivered on this subject in the *Commentary on Inflammation*, in the notes at par. 37. Moreover, Tissot, (*Tratt. de' nerv.* T. i. p. 2. art. 6. § 266. *et seqq*); after Senac (*De Coeur*, T. ii. p. 169.), Haller (T. ii. p. 205. & 202. & 252. *et oper. min.* T. i. p. 223. *et alibi.*); and Morgagni (*Ep. Anat. Med.* 24. n. 20. 23.) affirms, that arteries have their nerves: and very lately Compareti, who has observed a great

number of nerves, not only furrounding arteries, but intimately blended with their fibres.

‡ I do not wish here to pass over a remark in point made by De Haën ; it is as follows : “ It is more difficult to explain why apoplexy originates from the same cause (*namely, the consent of the intercostal nerve* pressing upon, or vellicating the thorax) ; but, on the other hand, we can readily conceive, that one small nerve may be some where so violently pressed and irritated as to occasion a derangement of the whole *sensorium commune*. In treating an ulcer, a nerve being roughly handled (as I have sometimes seen happen from the application of the *lapis infernalis* to bring down a *fungus*), occasions universal convulsions. From the mere application of poisons to the nerves of the stomach, which come from the intercostal nerves and *par vagum*, arises a species of apoplexy, which frequently in a short time disappears on the speedy expulsion of the poison. On the rupture of an abscess of the lungs, this apoplexy has remitted ; and in a short time along with it ceased the paralysis which had accompanied and followed it.” *Rat. Med.* P. iii. c. 2. p. 121.

110. It remains for me now to explain in what respect apoplexy differs from similar diseases. It differs from syncope, because in the latter the face is always pale, the respiration either ceases intirely, or is very low, no pulse is felt in the arteries, sweat commonly breaks out on the forehead, and the extremities are cold. It cannot be denied, however, if the greatest degree of apoplexy be present, that is, immediately before death, that sometimes it can scarcely be distinguished from syncope, unless we turn our attention to preceding circumstances, which may be learned from the domestics.

There is also a considerable distinction between *apoplexy* and *hysterical suffocation*; for in the latter neither do the parts become completely paralysed, nor is all feeling lost, as hysterical women both when pricked and twitched are sensible of pain; and besides, if the affection be unusually severe, the respiration and pulse seem to fail altogether, as in syncope, and the patients, on recovering from the fit, generally remember what passed while they seemed to be almost dead. Nor is any objection afforded to this by the history, if it be true, of the woman whom Vesali dissected; as it may be supposed, with more probability, that she was cut off by an *hysterical* or *convulsive apoplexy*, not in consequence of suffocation. Genuine *epilepsy* bears the greatest affinity to apoplexy in point of the total privation of sensation; for red-hot iron may be applied to the skin in epilepsy without being felt. It is distinguished from apoplexy, however, because in epilepsy, if it is complete, the whole body is seized with convulsive motions.

III. It now remains for me to say something, as I undertook at the beginning, concerning particular comatose affections, named *carus*, *coma*, and *letbargy*. For they approach so nearly to apoplexy, that Sennert, Boerhaave, and not a few others, considered them as slighter species of that complaint. And as they proceed from nearly

the same causes as it, particularly abscesses of the brain ; collections of mucous or coagulated lymph between the dura and pia mater ; effusions of limpid, or thick and turbid serum about or within the brain ; and, lastly, from plethora of its vessels succeeding to diseases of the lungs, and morbid conditions of the præcordia, particularly organic ones, as polypus of the heart, aneurysms, varices, and the like* ; it may not be improper in this place to give a summary view of the phenomena peculiar to each, in order that they may be the more readily distinguished from real and violent apoplexy.

* Morgagni, l. c. *Epist.* 6.

112. Carus, or the *apoplexia minor* of some authors*, constitutes the highest degree of them. Persons affected with it, although, as in apoplexy, they are overwhelmed with the most profound sleep, when shaken, or pricked, or roused with noise, open their eyes, retract the limbs which are punctured or twitched, and, when questioned, return an answer, although incoherently ; and, notwithstanding that they immediately relapse into the sleep, they do not snore, but enjoy free respiration. On the contrary, in apoplexy, the patients, when pricked, shaken, or burnt, are void of sense and motion, and put on the appearance of one in a profound and uninterrupted sleep.

* Sauv. Nosol. cl. iv. § xxix.

113. *Coma*, which is also named *cataphora* by Galen, seems to be a slight species of *carus*. A person affected with it is not only more easily roused; although he again relapses into sleep, but returns apposite answers to the questions which are put to him. It is divided into *coma somnolentum*, and *vigil*. In the *coma somnolentum* the patient sleeps very profoundly, but not so much so as in *carus*. In the *coma vigil*, again, which is likewise named *typhomania*, and *coma agrypnon*, or *agrypnodes*, there is an insuperable disposition to sleep, from which, however, the patients frequently start, as if terrified with a sudden noise, or perpetually alarmed with frightful dreams, by which they are constantly prevented from enjoying the sleep which they so earnestly desire.

114. Both kinds of the disease (112. 113.), that is, both *carus* and *coma*, are said by some authors to be conjoined with fever: others, however, affirm that they are unaccompanied with it; according I suppose, as they are accidentally found accompanied with fever or not. For if the complaint be primary, fever is not necessarily conjoined with it; while it is accompanied with fever, if it is symptomatic, that is, if it be a symptom of any fever, or of inflammation, or cephalitis, or phrenitis, or any other febrile disease. It generally supervenes upon hemiplegia, phrenitis, acute fevers, and inflammations.

It very frequently precedes the variolous, morbillous, and miliary eruption, and almost constantly accompanies slow malignant nervous fevers, and acute gastric ones. When mild coma supervenes in acute diseases, although it continues long, it does not portend an unfavourable event; because it prevents or allays delirium, headach, and other severe symptoms, and in young people often brings the fever to a more successful termination *.

* Bagliv. *De Capit. Affect. in Acut.*

115. With regard to *lethargy*, some assert that it is unaccompanied with fever, while others affirm that it is accompanied with fever, and that too of the slow kind. I should assign the same reason for this difference of opinion which I have adduced in the last paragraph. Lethargy is an immoderate sleep, oppressing the patient night and day: it does not, however, come on suddenly, but steals upon the patient gradually, and increases daily. The patient lies on his back, with his eyes half-shut, and his mouth open; when roused, he yawns, speaks little, complains of heaviness or pain in the head, and is seized with a total forgetfulness of all past transactions, even of those which have happened immediately before. When interrogated he scarcely returns an answer, instantly relapsing into his drowsiness. His pulse, in the mean time, is frequent, soft, irregular, languid, and slow, and sometimes

also undulating ; his respiration flow and weak. It may therefore be defined to be, a profound sleep, accompanied with a total oblivion of external circumstances ; of such a nature, however, that the person labouring under it may still be roused, and made to answer questions, although in an obscure, short, and irregular manner.

THE PROGNOSIS.

116. Genuine and exquisite apoplexy is a most dangerous disease, generally proving fatal ; because either on account of the brain being obstructed or impeded, the violence and motion of the fluids is turned more forcibly towards the brain, or the matter injuring, corroding, or compressing the brain is so great as to reach the intimate origin of the nerves, and the cerebellum itself, which is supposed to be more immediately connected with life. It proves fatal principally to plethoric old men, who lead an indolent life, and to those whose brain is weakened by an hereditary taint, or by some disease, frequently in three, or, at most, in seven days *. Sometimes also it extinguishes life in one or two days, nay, in a moment's time : and if a person escapes it, it is very apt to return.

* *Coac. n. 187. Cœlius Aurelianus, l. 2.*

117. The *sanguineous* species of the complaint is more dangerous than the *serous*, and both of them more so than the *convulsive* kind. In the sanguineous species, if the blood escapes out of

its proper vessels, we can scarcely entertain any hopes of its being dissolved or absorbed, or that the mouths of the vessels will close again. The *serous* species is frequently succeeded by hemiplegia, or severe palsy of some part, or oblivion, or fatuity, or languor. The *convulsive* species is generally resolved a few hours afterwards, of its own accord, by vomiting, diarrhœa, sweat, urine, or some other excretion, leaving no mark behind, or at least a very slight one in the mouth, tongue, or other parts of the body. But if it bursts the vessels, as sometimes happens, or otherwise injures the origin or progress of the vital nerves, which occasionally happens after epilepsy, or violent convulsions, especially in plethoric people, it generally on a sudden proves fatal. No small danger also attends the *apoplexia metastatica*, as the *arthritica*, *loebialis*, and *lacteæ* (115.), particularly if we have not speedy recourse to the cure; for it generally occasions death in a few hours.

118. The termination of the apoplexy also will vary according to the variety of its degrees (116. 117.). For in the first and second degree (117.) there is still some hope of a recovery. In the third species we may try what art can do, without promising any certainty of success in so perilous a case. In the fourth degree we should not even attempt the cure without previously declaring that the patient's death is inevitable. For Hippocrates has very properly observed:

“ To resolve the most violent degree of apoplexy is an impossibility, while the cure of the slighter kind is very doubtful *.”

* Aph. 42. sect. ii.

119. In general a very bad symptom is afforded by the snoring, and foaming at the mouth * : and the same thing is applicable to the difficulty of swallowing, and the regurgitation of the drink through the nostrils. Every affection of the respiration gives reason for apprehension. But, as I have already mentioned from Morgagni (97.), we must not rashly trust to the respiration's remaining natural. That apoplexy, likewise, which succeeds to acute fever or epilepsy, or which takes place in consequence of a metastasis, generally proves fatal. A cold sweat also breaking out all over the body, or in some part of it, forebodes an unfavourable event. The slighter, or partial species of apoplexy (86. 87.), portends less danger; but is frequently succeeded by palsy or weakness of some part.

* Hippocr. aph. 51. sect. vi. aph. 43. sect. ii.

120. Piles coming on in persons struck with apoplexy are attended with utility, according to the author of the *Coacæ Prænotiones* *. A fever coming on also occasions a solution of the disease †. The following aphorism of Hippocrates likewise is applicable to this place: “ Those persons in whom, while in good health, pains sud-

denly take place in the head, and who immediately become speechless, and fall a snoring, are cut off in seven days, unless a fever comes on ‡.” But this prognostic requires some explanation. In order to resolve the disease, the fever ought either to be an ephamera, which comes on at the beginning of the disease in the sanguine or bilious temperament, or an acute one supervening in the phlegmatic temperament; and in both of them the fluids ought to remain within the vessels. But if they have already burst from their vessels, and the disease has continued for some time, Duretus, in his Commentary, pronounces fever to be injurious, and he is supported by the *Coacæ Prænotiones* ||. Puiatus § accedes to the explanation of Duretus, observing that the fever, in order to prove salutary, ought to come on early, and be violent, as an ephamera is, but not inflammatory. And he adds, that the fever, which, in the course of thirty years practice, he observed to supervene in such cases, was either inflammatory, and consequently hastened the patient's death, or too slight, or late, and therefore unavailing:—a fact which I myself can affirm to have frequently witnessed.

* N. 478. † N. 479. sect. ii. ‡ Aph. 5. sect. vi.

|| N. 480. sect. ii. § *Letter. al Figlio inserta nella Raccolta. d'Opuscul. del Calogera, vol. 50.*

121. But partial palsies, nay, hemiplegia it-

self, if sensation and heat remain, and nourishment still goes on in the part affected, while the pulse does not fall very much, give us great reason to expect a cure. But if the sense and motion are lost, and the arteries beat very languidly, while the insensibility is such, that the part does not appear to belong to the body, it is a much worse symptom. Lastly, if the part is affected with cold, or if it becomes emaciated, such a paralysis is almost uniformly incurable. Van Swieten remarks, that this happens principally in the paralysis which succeeds to the *colica pictonum* *. It not unfrequently happens, that, on account of the long-continued paralysis of a muscle, its antagonist prevails, and draws the limb to which it is affixed towards its origin, whence arises *contractura* and rigor †. But every contractura of a limb is not to be immediately derived from this cause. Paralysed parts, during their wasting, sometimes grow so dry, that the tendons of the muscles and ligaments of the bones become shortened and rigid.

* L. c. § 162.

† *Id. ib.* § 326.

THE CURE.

122. WHENEVER a physician is called to a person in a state of apoplexy, his first care ought to be, to place the patient in a light, cool apart-

ment, raising the body pretty high in the bed, and laying the head bare, but carefully covering the feet, and letting them hang down, having previously loosened the cloaths about the neck, breast, belly, &c. He ought in the mean time to deliberate with himself, as far as possible, of what temperament, age, and habit the patient is ; how he used to formerly live ; as also what causes preceded the complaint, and what ones excited it, and, lastly, what the state of his strength formerly was, and now is ; and, in consequence of weighing all these things, having ascertained the species and degree of violence of the complaint, he ought without loss of time to employ the treatment adapted to it.

123. In the sanguine species of the complaint, which is recognised by its peculiar symptoms (99.), the blood, either from its too great abundance, or from its being too long detained in the head, proves hurtful by pressing on the brain. It ought, therefore, to be immediately drawn, in consequence of which, the quantity of the blood being diminished, and its impetus blunted, what remains in the vessels circulates with more freedom, and thus the brain is relieved. But it ought to be drawn liberally, and from a large opening, particularly if the patient be very plethoric, and in the prime of life. It is not easy to determine, in general, what quantity ought to be taken, as in this respect we must be regulated by

the patient's strength, age, habit, sex, and the country in which he lives, and particularly by the violence and strength of the pulse, and the redness of the face. Some authors are of opinion, that bleeding is inadmissible in phlegmatic and melancholic people, in persons advanced in life*, in young people, and during pregnancy. But their opinion is opposed by the experience of Hippocrates †, Aretæus ‡, Cœlius Aurelianus ||, and of almost all eminent physicians of extensive practice.

* Lancisi, in order to demonstrate the utility of copious bleeding even in old age, makes mention of a merchant advanced in life, who was threatened with apoplexy, having been rescued from the danger in consequence of a spontaneous discharge of blood from the nostrils, to the extent of eleven pounds, and having at length been intirely freed from the complaint by a farther discharge of four pounds, which took place in about fifteen days afterwards.

† *De Vict. Ration. in Acut.*

‡ *De Curat. Acut. c. iv.*

|| *Lib. ii. c. 10.*

124. If, therefore, the patient's strength is not defective, or only appears oppressed in consequence of the excessive fulness of the vessels, and the other symptoms indicate it, in a grown-up person we ought immediately to open a vein in the arm, and, if the person labours under hemiplegia, on the side opposite to that affected,—which, according to Aretæus*, and after him Valsalva and Morgagni†, is found to be attended

with more utility ‡,—and twelve ounces of blood, or, when the plethora is greater, eighteen ounces may be taken. Some patients bear a much greater loss of blood without syncope coming on. Nor ought we to be deterred from bleeding by the intermission or irregularity of the pulse, unless other symptoms denote deficiency or resolution of the vital powers, until the immediate danger appears to have been sufficiently obviated. Some also, when the plethora is very great, and the brain is much oppressed, advise opening the veins of both arms, or in both feet, to occasion revulsion from the brain as speedily as possible. But this remedy ought to be practised only by a physician of the greatest experience and circumspection, lest a fatal syncope close the scene.

* *De Morb. Acut. Curat.* l. i. c. iv. † *Epist. Anat.* xiii. n. 17. & *Anat. Med.* iii. n. 17.

‡ Mayn. Sim. du Pui, in his *Dissertatio de Homine Dextero et Sinistro*, recommends bleeding on the opposite side of the body in hemiplegia arising from an injury of the brain, although he denies that any decussation of the nerves takes place.

125. If the quantity of blood drawn at first does not prove sufficiently serviceable, it may be again repeated in three hours, or even sooner, if necessary. Some advise bleeding from the foot, others from the arm. But a careful consideration of the circumstances will best point out the most convenient place. The flowing or retention of the menstrual, hemorrhoidal, or lochial discharge,

generally require our giving the preference to bleeding from the feet. We likewise learn from an author of the greatest experience, that bleeding from the foot, and that too from the one which is paralysed, in hemiplegia is very frequently of the utmost service ; because “ by this means the obstacles giving rise to convulsions and obstructions, which remain firmly fixed in the vessels of the injured part of the spinal marrow, or base of the brain, may be more easily and forcibly removed *.” If the sense and motion of the part still do not return, or a pain remaining fixed in some part of the head denotes that the brain is not yet sufficiently relieved, we must next have recourse to opening the jugular veins, which is recommended by Freind †, Lancisi ‡, and a great many others ||, or to opening the temporal artery, which Heister proposes §. Some, in like manner, when the jugular veins do not appear, or cannot conveniently be opened, propose bleeding from the frontal vein, or sublingual ones ; but in general this cannot be done without great inconvenience. Nor does Platner consider this remedy as being attended with sufficient advantage, in opposition to the opinion of Petrus a Castro, P. Salius Diverfus, and Lancisi. But in the opening of the jugular and other veins which I have mentioned, if it seems proper to attempt it, we must be on our guard, as I have

elsewhere remarked (24.), against binding the neck with a bandage, to cause them to swell, lest the return of the blood from the head being more and more retarded, should increase the congestion in the sinuses and vessels of the brain. We should take care to cause the jugular veins to swell, merely by applying the finger, or to cause an intumescence of the sublingual ones, by keeping warm water in the mouth before drawing blood from them.

* Lancif. *De Sub. Mort.* l. 2. c. v. § 3. † *Op. Omn. in Hippocr. Epid. Comment.* ii. *De Sang. Mission.* &c. p. 32.
 ‡ *De Sub. Mort.* l. 2. l. v. § 3. 4. || Trallianus, lib. 4.
 Actuarius, l. 3. c. 1. Fabric. Hildanus, cent. 4. 14. Alpinus, *Med. Ægypt.* and after them most of the modern writers.
 § *Compend. Med.* c. xiv. § xxxii. p. 296.

126. It is of the utmost service also, after previously scarifying the skin deeply, to apply a cupping-glass to the occiput, and thus to draw blood, especially when it has already been drawn copiously from other parts, or the strength does not admit of its being taken directly from the veins; although, according to Morgagni *, it is still not to be compared with venesection from the arm or jugular vein. For the occipital veins, like the other ramifications of the external jugular, communicate with the venous sinuses of the membranes of the brain, particularly in early life. Merely by means of twice deeply scarifying the occiput, Zacutus Lusitani † recovered a

young man, whose “ pulse was so much reduced, that his death was expected hourly,” and who was incapable of bearing other remedies. M. Ant. Cicognini, then one of the most distinguished physicians in Æmilia †, when “ labouring under an obstinate and very difficult comatose affection,” received great benefit from that remedy. Meade || joins with Morgagni in commendation of this remedy, and asserts that it is attended with very great efficacy in the most dangerous fits of apoplexy, and that he had more than once experienced its great utility. But before their times this practice was considered by Aretæus § of such consequence, that he expressed himself, when speaking of it, to the following effect: “ When a disease, proceeding from an affection of the head, continues long, a cupping-glass ought to be applied to the back of the head, and by this means blood should be drawn liberally: for it proves more serviceable than venesection, and does not reduce the patient’s strength ¶.”

* *Ep. Anat. Med.* 11. art. 10. † *De Med. Princ. Hist.* 1. 1. hist. 33. ‡ Morgagn. *Advers. Anat.* vi. animadvers. 83. || *Monit. et Præcept. Med.* c. 2. § 1. § *De Morb. Acut. Curat.* 1. i. c. iv.

¶ But, according to Morgagni, no writer has given a fuller or more accurate account of this remedy than Walther, who has published a dissertation *De scarificatione occipitis, plurium capitis morborum auxilio*, and has evinced its efficacy both by the observations of others and his own.

127. Others advise applying it, not to the occiput, but to the vertex, or finciput*, which Fracaſtor is ſaid to have performed with the greateſt advantage in treating a nun who had been ſeized with the complaint: although, when he was attacked with apoplexy himſelf, and could not make the by-ſtanders comprehend his meaning, he was obliged to remain without this aſſiſtance, having to no purpoſe pointed with his finger to the part to which the cupping-glaſs ought to have been applied †. Meade ‡, alſo, after Haly ||, Foreſt §, and Schencke ¶, adviſes the application of cupping-glaſſes to the ſides of the neck. Nor is it unattended with utility to apply both dry and bloody cupping-glaſſes to other parts of the body alſo, excepting the back, that we may not farther check the motion ſubſervient to reſpiration, already too weak; although this does not ſeem to have been ſufficiently attended to by Dodonæus **, who has expreſſly recommended the application of them in that manner. But thoſe who recommend applying them in this manner, generally do not place the patient flat on his breaſt, but rather make him lie on one ſide, that the reſpiration may ſuffer leſs injury.

* Pet. Aponenſ. in *Complem. Meſ. de Morb. de Cerebr.* c. 17. Crato, conſil. 36. 37. Sennert, l. 1. *Pract.* P. ii. c. 33. fol. 680. b. Gr. Nymann, *De Apopl.* c. 39. p. 229. † *In vita Fracaſtorii, verſ. fin.* Heurnius, c. 24. *De Affeet. Capit.* p. 270. ‡ *Monit. et Pracept. Med.* c. 2. ſect. 1. || L. 3.

Aphor.
obs. 149.

§ L. 10. *Observat.* 76. *in scholio.*
 ** L. 2. *Prax.* c. 15.

¶ L. 1.

128. With the view of diminishing or drawing the blood elsewhere, leeches may be applied, not only to the temples and behind the ears, as I have already recommended for the cure of headach, but likewise to the anus, particularly if the complaint has proceeded from suppression of the hemorrhoidal or menstrual discharge, or from affections of the *hypochondria*. They will likewise be serviceable when the complaint is occasioned by other causes; particularly when other veins cannot be opened conveniently or safely. But in that case they ought to be applied to the whole body, or at least to a variety of different parts of it, that a copious effusion of blood may be occasioned. In children, corpulent people, women, and weakly persons who are afraid of being bled, the inner part of the arm is supposed to be best calculated for the purpose.

129. On the whole, it is established, as a general maxim, That after drawing blood from parts in the neighbourhood of the head, the veins of the inferior joints should be opened, to produce revulsion. But a person, when about to let blood, is frequently a good deal staggered by the observation of Celsus, “That if all the limbs be violently paralysed, bleeding either proves fatal, or relieves the patient*.” I should

interpret the observation by saying, that bleeding occasions death, when the disease proceeds from an effusion of blood within the cranium or brain, or from an hydropic collection, and that it relieves the patient when the collection of blood remains still within the vessels, by which means both the vessels and the brain may be emptied and relieved. Hence he very appositely subjoins: “After the bleeding, if sense and motion are not restored, no hopes remain; if otherwise, the health is restored along with them.

* Lib. iii. c. 27. n. 20.

130. After drawing blood, it is necessary to purge the belly by means of a clyster, though not a very acrid nor warm one, that spasms may not be excited in the lower part of the belly, which would propel the blood more and more towards the head;—a rash practice which too commonly prevails. Having by this means drawn off the grosser excrements, if the patient still retains the power of swallowing, antiphlogistic cathartics ought to be administered, in order to excite a slight diarrhœa, which generally proves very serviceable in all diseases of the head. But when the apoplexy is very violent, as the sphincter ani frequently becomes paralytic, and the power of swallowing is lost, in that case a passage ought to be solicited by means of a pessary. If it proves fruitless, the smoke of tobacco may be injected up the intestines, to excite the

peristaltic motion ; but if the fumes of charcoal, or the abuse of tobacco, or other noxious effluvia (85.), have induced the complaint, such a remedy would be to the last degree pernicious. But if there be a necessity for employing it, the physician must conduct himself with the utmost circumspection, that the languid nervous influence may not be completely extinguished by its narcotic quality *. A weak decoction or infusion of tobacco-leaves seems to be safer than the smoke.

* Vid. Bassian. Carminat. *De Animal. ex Mephit. et Nox. Halit. interitu*, &c. l. 3. c. 2. p. 174. 175. 176.

131. There is scarcely any disease in which medical men act more decidedly than in apoplexy, employing every means to rouse the patient from his stupor. Not a few, guided in their opinion chiefly by the authority of Riverius and Van Helmont, with this view adopt the indiscriminate employment of emetics, keeping in view the maxim of Celsus, “ That it is better to make trial of a doubtful remedy than none at all,” in a case which is almost desperate. But I would have them recollect, that many circumstances contra-indicate the employment of emetics, namely, obesity, a short, thick neck, a narrow chest, a large belly, plethora, a tendency to the vomiting or spitting of blood, organic injuries of the lungs and præcordia, any severe affection of the eyes, weakness of the head, great tumours of

the neck, particularly of the thyroid gland, enetrocele, or tumour of the umbilicus, gravid uterus *, an ulcer or scirrhus of the stomach, a particular idiosyncrasy, by which a person is not easily made to vomit, old age and decrepitude, the particular climate, and its being the winter season †. Besides, nobody in his sound senses will deny that it is attended with the greatest danger to excite vomiting in that species of apoplexy which is occasioned either by the excessive distension, or rupture, or corrosion, of the blood-vessels of the brain. For who does not know, that, in consequence of vomiting, the blood is propelled more copiously and forcibly to the head, and that its return from thence is impeded; so that the vessels become more and more turgid, and though they may perhaps have remained hitherto uninjured, are more apt to become ruptured; while, if they have already been lacerated, in consequence of the enlargement of the wound, they pour out the blood in greater quantity? Moreover, during the effort of vomiting, the diaphragm, heart, and lungs, which are already almost in a state of palsy, must necessarily become oppressed, and the patient, in consequence of the suppression of the respiration, be immediately suffocated. I have more than once myself observed with regret, a hemiplegia, or slight and partial apoplexy, in consequence of an emetic having been given, pass into a violent and universal

one, and the more severe species of the complaint in a few hours terminate in death. I am aware that the sticklers for this decided practice, who are very numerous in this country, record instances of the efficacy of emetics in apoplexy. But we are not intitled to infer, from a few successful instances, which perhaps were more owing to the vigour of the patient's constitution than the efficacy of the practice, that emetics are not pernicious of themselves, as I have repeatedly had an opportunity of ascertaining the fact †.

* Certain modern practitioners, particularly those who have been educated on the other side of the Alps, without hesitation propose giving emetics to pregnant women, supposing, I imagine, that as they bear the vomiting which proceeds from pregnancy, they will be able, without inconvenience, to suffer that which is excited by art. But they ought to recollect, that not a few women, during pregnancy, on account of frequent and distressing vomiting, have suffered abortion. I am not therefore induced by their authority and temerity, not to believe that it is by far safer for pregnant women to abstain from emetics properly so called.

† Hippocrat. aph. 4. sect. iv. where he says, "In the summer-time vomiting is to be preferred to purging, but not so in the winter-time."

‡ I shall not, however, pretend to be ignorant, that in the disease described by Lancisi, not only cathartics turned out well, because then both the mass of blood and the hypochondres abounded with a great quantity of bilious, acrid particles, but also emetics, as he himself affirms, when he says, "Vomiting likewise proved serviceable in those persons who

had been accustomed to it, as well as in those who laboured under the weight of an undigested supper." L. c. l. 2. c. v. § xiii.—But the injuries which they occasion seem to be more certain, and the relief they afford doubtful.

132. With regard to the experience of Riverrius and Van Helmont, it does not seem to be such as to demonstrate that emetics are calculated for every kind and degree of apoplexy. Nor does the maxim of Celsus hold so uniformly, that we shall not be intitled to reject it whenever it is repugnant to reason. In the sanguineous species of apoplexy, therefore, all emetics, particularly the active ones, ought to be avoided, as not being indicated, and proving hurtful, in consequence of which they have been exploded by judicious physicians, and particularly by Morgagni. They are likewise inadmissible in the convulsive species of the complaint, and particularly in sensible and irritable habits, lest they should aggravate the spasms more and more. But if they are ever admissible, we may probably give them, along with Baglivi and Heister, in that species of the complaint which has been occasioned by excessive fulness of the stomach, intemperance, poisoned food, or opium taken a little before; although in apoplexy accompanied with a full stomach, as that one is which attacks after eating, Morgagni suspects the propriety of emetics, adducing an instance of a person labouring under hemiplegia, who, in consequence of an emetic,

was hurried into an universal apoplexy, which shortly proved fatal *. Nor must they be attempted before previously diminishing the quantity of the blood, if plethora be present. It frequently happens also, that unskilful physicians decide the propriety of prescribing an emetic, from the circumstance of the vomiting or nausea, which precedes or accompanies the complaint, notwithstanding that the vomiting or nausea is a sympathetic affection proceeding from that of the brain †; a distinction which becomes absolutely necessary. For in the former case it is altogether necessary to abstain from emetics, as being highly pernicious.

* *Epist. Anat. Med.* iii. n. 4.

† Two cases communicated by my ingenious friend Felix Perger, in two letters, the one addressed to Störck, the other to Professor Menghin, apply well to this place; as in them he shews the impropriety of employing emetics in the case of vomiting arising from an injury of the brain.

133. Nor is any kind of revellent or exciting means left untried to rouse the patient from his lethargy. The best method of deriving the blood from the brain and head is immersing the patient's feet in the tepid bath. Likewise revulsion is occasioned, and sensation and motion increased, by binding the limbs with ligatures, by friction, epispastics, sinapisms, and blisters *. Some recommend burning the soles of the feet

with hot iron, or pricking the palms of the hands with needles, or forcing pins under the nails, by means of which apoplectic patients are said to have been sometimes excited who could not have been roused in any other way. But I can scarcely be led to suppose that any good will be obtained by tormenting the patient in this manner, and that the proximate cause of apoplexy is not thus removed, when the other remedies have been inadequate to produce that effect. For the good effects of this remedy, or rather torture, adduced by Lancisi † from Mistichell, Claudini, Fideli, and Henricus ab Heers, either are not of that kind which demonstrate their certain utility, or I am inclined to think, that in comatose affections, falsely considered as apoplexy, they would have been produced without having recourse to these tortures, if the physician had waited with patience. But in the sanguineous species of the complaint, those remedies are inadmissible which accelerate the circulation of the fluids, or occasion excessive motion. Hence sternutatories and acrid volatile remedies are considered as being of so suspicious a nature, that they ought not to be employed without the prudent consideration of all the particulars of the case, and the most scrupulous circumspection ‡. If it is allowable to apply any thing to the nostrils, it may be vinegar, or oil of amber, or its volatile salt, or spirit of baum, with which both the tongue and mouth,

and torpid limbs may be rubbed. Those things, again, may be given internally which are diluent, correcting, and gently resolving, as whey, the decoction of barley, an infusion of teils-flowers, with nitre and oxymel, and the like.

* L. c. c. v. § xii.

† Tissot is so averse to every kind of acrid stimulus and medicine accelerating the motion of the blood in the cure of apoplexy, that he pronounces even blisters to be unsafe, and affirms, that, with a view to producing revulsion, more advantage is to be derived from the application of cataplasms of fermenting bread and mustard-seed to the calves of the legs after the previous employment of soft fomentations. *Epist. Var. Arg. ad Haller*, p. 65. *Ed. Venet.*

134. If by these means we rouse the patient, while the respiration, pulse, and former heat and colour return, there is reason for entertaining good hopes. The patient should then be allowed weak broths, in which have been boiled cooling herbs, as baum, primrose-flowers, those of lilies of the valley, tunica and teil-tree, together with some of those things which are more powerfully attenuant, dissolving, and exciting, and promote the discharge by the skin and kidneys, as amber and its volatile salt, diaphoretic antimony, antimoniated nitre, camphor with nitre, cinnabar well washed and sublimed, and so forth.

135. In the serous species of apoplexy, as recognised by its peculiar marks (100. 101. 102.), physicians are not a little divided in their opinion

concerning the letting of blood. In this case, however, I am guided by a distinction which is generally adopted by the ablest practitioners. If the patient is still of a good habit, if both fulness of the vessels, and a certain abundance of red blood, seem to concur, which may be learnt from the greatness of the pulse, the nature of the food, and the patient's manner of life, I am of opinion, with Morgagni and others, that a vein may be cautiously opened*, that at least one of the causes oppressing the brain may be quickly removed. On the other hand, if the complaint is combined with a bad habit of body, or gives occasion to a cachexy, while no marks of plethora are present, bleeding must be avoided†. Likewise, if the brain labours under dropfy, and it is suspected that there is a very considerable collection of water in it (50. to 53.), while the vessels contain little and poor blood, we must abstain from it, because, in consequence of bleeding, not only is the dropfy confirmed, but frequently occasioned; and we ought rather to have immediate recourse to strengthening means, both internal and external. It is likewise injurious to bleed in the case of weakly people, those far advanced in life, who have been long troubled with, and much reduced by, a chronic complaint in the head, or when the patient has been attacked with apoplexy in consequence of the copious drinking of medicated waters‡.

* *Epist. Anat. Med.* iv. n. 10.

† *Ib.* n. 15.

‡ *Ib.*

136. Cupping-glasses and leeches are employed with greater safety, although they do not cure the complaint so quickly and powerfully. Purging is attended with still less danger, and more advantage. Most authors in this species are warm in their recommendation of emetics; which, although they are not to be so much dreaded as in the sanguineous species, must not be considered as altogether harmless, and therefore are not to be employed indiscriminately, or too hastily. Nor, because apoplexy is frequently preceded by, or accompanied with vomiting, or a desire to vomit, ought we to infer that these motions of nature are salutary, and therefore to be promoted; for they generally proceed, as I have already said, from the brain being affected and vellicated, and not from a colluvies in the *primæ viæ*. It is better, therefore, to attempt that by means of cathartics of the class of hydrogogues, which others generally endeavour to effect by emetics. Agaricus, jalap, diagrydium, fenna-leaves, manna, sal Anglicum, cream of tartar, the *pulvis Cornacchini*, the *pilulæ de succino Crætonis*, the *pilulæ de tribus* with rhubarb, sweet mercury, and the like, frequently afford remarkable relief. On the same account, likewise, I recommended active injections (to which some add emetic wine), and all those medicines which powerfully draw off the serous fluids by the bowels or kidneys.

137. Those remedies also are very proper which, by their irritation, occasion pain, and excite the solids, which are in a state of torpor (133.), or form a new outlet for the redundant serum, as the ulcers occasioned by the employment of cantharides, setons, and issues. Under this head come, warm and acrid volatile remedies, taken both internally and externally, as the alkaline volatile salts, spirit of sal ammoniac, of foot, hartshorn, human blood, spiritus folliculorum ferici, and the like; above which may be drunk, warm infusions of the decoctions of marjoram, sage, betony, lavender, and rosemary. There is need of caution, however, lest, by the excessive and too bold employment of calefacient remedies, we excite, not an ephemera, but a very violent and ardent fever, or an alkalescent dissolution of the fluids, by which the patient's death may be hastened. All the remedies, therefore, must be cautiously adapted to the patient's temperament and habit of body, and to the peculiar condition and acrimony of the blood, as well as to the age, sex, strength, and preceding diseases.

138. Nor is there occasion for less care when we proceed to the treatment of the convulsive species of the complaint (95. 103. 104. to 119.). In the apoplexy in which the brain is idiopathically affected, it is clear, that, according to the nature of the different causes irritating and pressing upon the origin of the nerves, those remedies

are to be employed of which mention has been made in the treatment of the sanguineous and ferrous species, observing the same cautions and precepts which I have already repeatedly inculcated. In the sympathetic species, however, after taking as much blood as shall appear proper in patients of the sanguine and choleric temperament, and who are not accustomed to such evacuations, we must in general avoid, both internally and externally, all remedies which are too acrid and irritating, particularly when the sensibility of the nerves is exquisite. On the other hand, we may employ tepid bathing and fomenting of the feet, emollient injections, and the milder kind of cathartics, as the oil of sweet almonds, olive, lintseed, or castor oil, magnesia alba, cassia-flowers, and whey, which relax the spasms, allay the sensibility and irritability, correct the acrimony of the fluids, and very gently remove the colluvies from the intestines. Nor are the cooling and antispasmodic remedies without their use, of which the chief are, the volatile salt of amber, the succinated liquor of hartshorn, the tincture of amber, saffron, and castor, the *liq. anod. min.* of Hoffman, and flowers of zinc, which are celebrated by Gaubius, and others of the moderns, on account of their sedative and antispasmodic power, Homberg's sedative salt, water of orange-flowers, the redistilled water of green nuts, peppermint,

and black cherries, the aqua epileptica of Langius, the *aqua hysterica* of Quercetanus, musk, camphor, and the like, which must be judiciously adapted to the patient's temperament, age, constitution, the season, and causes of the complaint. It is particularly necessary, however, to inquire into the origin of the complaint, by which the cure ought to be intirely regulated.

139. From this threefold method of treatment, adapted to the three more remarkable varieties of apoplexy, it is an easy matter to infer what remedies are suited to the other ones, which are variously combined. For it seldom happens that simple diseases, such as they are described by pathologists and nosologists, are met with in practice, but they are generally such as are variously modified. Hence it happens, that in order to be able to form a just diagnosis, and adopt a rational method of treatment, the practitioner must be possessed of sound judgment, and must frequently bestow the deepest reflection on the subject. On the whole, the causes of the complaint must be kept in view, and we must endeavour by all means to remove the original disease. Thus, in the *symptomatic* apoplexy, as the species named *febrilis*, *scorbutica*, *præcordialis*, *venerea*, and so on (82. 91. 94. 95.), we ought to found our expectation of the cure upon the knowledge and removal of the primary complaint from which it has proceeded.

The *apoplexia metastatica* requires every kind of revulsion and evacuation, particularly promoting the discharge by the kidneys and skin. That species which has been occasioned by a blow, wound, contusion, or fall, depends for its cure principally on the aid of surgery. The depressed part of the bone must be raised by employing the trepan; and the fractured part must be removed, to free the brain from the pressure, or in order that the effused blood may be drawn off. Trepanning may also be employed if there is reason to apprehend that the internal vessels have become ruptured, although the skull remains uninjured, or an abscess or tumour exists within it. But then the affair is intirely to be effected by the skill of the surgeon. It is also superfluous to say more concerning what the physician ought to do when the apoplexy has been occasioned by tophi and venereal exostoses. For the patient's recovery intirely depends upon a course of mercury, or in some cases on a very strong decoction of sarsaparilla, or guaiac.

140. Lastly, that species of the complaint which proceeds from the fumes of charcoal and deleterious halitus requires that the patient should immediately be brought out to the open, cold air; and next, after frequently sprinkling the face with cold water, letting of blood copiously from one or other of the jugular veins. Injec-

tions of cold water and vinegar ought to be thrown in. Volatile substances should be applied to the nose. Some vinegar ought to be dropped into the mouth and fauces, but with caution, that it may not pass into the glottis ; and, on the patient's coming to himself, it may be occasionally given mixed with his drink ; while the whole body should be rubbed with frictions kept up for a long time. Portali * recommends, as a remedy of the greatest utility, the blowing in of air by means of a flexible tube introduced into one nostril, while the other is compressed with the finger ; and, as a last remedy, he even proposes tracheotomy. He thinks that this method of inflation is to be preferred, from having observed, that if it is introduced into the mouth, either the epiglottis is depressed, and thus the access of the air to the larynx obstructed, or that it is forced into the œsophagus. He rejects emetics as pernicious ; nor is he less averse to the introducing of the smoke of tobacco into the intestines. For he thinks that the intestines, when inflated with it, so far from exciting the motion of the diaphragm, which is our object, violently oppose it. But we have shewn, moreover, that he suspects that this remedy is pernicious, from being capable, in consequence of its narcotic quality, of aggravating the disease, and accelerating the patient's death.

* *Hist. del' Acad. Roy. an. 1775. vid. also Giornale de Pisa, T. 39.*

141. But if the having swallowed or taken poisons by mistake, particularly narcotic ones, has occasioned apoplexy (85.), they ought to be expelled immediately, by exciting vomiting. But nothing after vomiting is supposed to be more efficacious in correcting the effects of every narcotic poison, than vinegar and the acid juices of fruits. It is likewise proper to employ them in those cases in which the disease has been occasioned by the eating of poisonous mushrooms. But in those apoplexies, and in the apparent death which is occasioned by the vapour of fermenting bodies, and the noxious effluvia of common sewers, volatile alkali is warmly recommended by Le Sage, one of the Parisian Academicians, whose experiments have been collected by Le Noir, and published with the view of confirming its very great efficacy. Nor is it surprising, as all those things which recall the sensibility and irritability likewise rouse the vitality when almost extinguished, not, as he supposes, that the volatile alkali opposes the acidity arising from them,—for likewise acid vapours and spirits afford the same benefit,—but that, by means of its stimulating and irritating power, it rouses the nervous influence and torpid irritability of the heart.

142. When the disease begins to remit, we should

endeavour to overcome the remains of it, and to remove the partial paralysis which is generally left, by correcting the causes. It will therefore become necessary to continue a considerable time in the use of attenuant, resolving, and evacuant remedies. Under this head come, the ferulaceous gums; purgative extracts, as the panchymagogue of Crollius, or black helebore; sweet mercury; decoctions of the diaphoretic woods, as they are called, as guaiac, juniper, saffras, mistletoe, mastich, the roots of sarfaparilla, burdock, bark, and madder; viper soup *; succory; cephalic or antiscorbutic plants boiled in whey; the hot bath, and the pouring of warm water on the patient; lotions of the same; stimulant, penetrating, volatile liniments, among which the *oleum formicarum* holds no inferior rank; mercury †, electricity ‡, tried with caution ||, exercise, riding, and change of air. Not long since Collin greatly extolled the flowers of the *mountain arnica* of Linnæus, affirming that they possess a wonderfully resolving and exciting property in the cure of palsy §. I must not here omit to mention a fact which is universally observed to occur, namely, that in hemiplegia the feet and legs sooner recover their motion than the arms and hands, although nearer to the brain and heart. Hippocrates ¶ derived this from the *straightness of the veins*. But it is more probable that the nerves proceeding from that part of the spinal

inarrow which is farthest situate from the seat of the disease, such as the *crural nerves* are, if I mistake not, soonest recover their power.

* In here enumerating these various kinds of remedies, I do not wish any one to suppose that they ought to succeed one another, or be employed without a judicious selection. I take it for granted that the reader is already acquainted with their nature and powers from the *Materia Medica*, together with the cautions prescribed in the general doctrine of therapeutics for the proper employment of them. Thus, when I mention viper-soup, I do not affirm that it is a remedy calculated for every species of paralysis, from whatever cause it proceeds; but I require that the practitioner, after considering the causes of the complaint, the patient's constitution, and the nature of the indicantia, should deliberate well with himself whether it is fit for fulfilling the indications. The same thing I should wish to have understood of every other remedy. Authors are not agreed as to the nature of the medicinal powers possessed by vipers, and as to the effects which they produce in the human body. Some are of opinion that they abound with volatile salt, in consequence of which they agitate and heat the blood, excite the vital power, increase motion, attenuate the fluids, and dispose them to alkalescence; while others, denying all this, affirm that nothing of a volatile and active principle is extracted, but much viscid and glutinous animal mucilage; and that therefore an insipid, mucous, and sluggish soup is made from them, intirely similar to that made from eels. Hence the first set rank it, on account of its exciting and heating power, among the more active remedies, and are not a little apprehensive of employing it from its volatility: while the other set turn their fears into complete ridicule, considering it as an inert, and frivolous, and highly contemptible remedy. It has not, however, lost its character in every country, particularly in Italy, where it has been held in great estimation from the earliest times; doubtless in consequence of the success

which practitioners have found to attend its employment. Add to this, that from various experiments of Beccaria (*Instit. Scient. Bon. Com.* T. ii. P. i. p. 95.) it has been ascertained, that in vipers there is nothing either of volatile salt, or of any other heating principle, which should give reason to suspect the propriety of employing them, but, on the contrary, a very bland, gelatinous, fine juice, extremely nutritious, which softens the rigid fibres, and which is calculated to be attenuated by the motion and heat of our body, and hence pervading all, even the most minute vessels, gently dissolving the viscid serum and sluggish lymph, without stimulating the system, removing obstructions, promoting all the excretions, and particularly the cutaneous perspiration; in consequence of which effects, a slender and emaciated habit becomes plump, acquires a more agreeable appearance, and colour, together with greater strength and agility, and the system is purged of the hurtful, salt, acrid, recrementitious matter contained in it, through the pores of the skin, and by the urinary passages. Why then should not this remedy prove serviceable in paralysis? He, moreover, grants, that viper-soup sometimes occasions fever, aggravates the heat and thirst, and induces watching; but that all these effects are not to be ascribed to the native properties of the remedy, but rather to a peculiar rigidity of the solids, or to more exquisite sensibility, or to the acrimony of the fluids, which, when mixed with the gelatinous liquor of the vipers, and carried to the more internal and sensible parts of the system, occasions all these commotions. But let us grant that viper-soup possesses an exciting, dissolving, and calefacient property, might we not on this very account derive much advantage from it in paralysis accompanied with languor of the vital motions, laxity and sluggishness of the parts, an almost cachectic habit, or the body being almost exhausted of fluids, while the lymph, which moistens the nerves, is at the same time cold, sluggish, and viscid? Tissot himself,—who is such an enemy to this remedy, that he thinks it might be expunged from the *Materia Medica* without any loss,—owns that it may prove

serviceable in diseases proceeding from a deficient quantity of healthy fluids, and when the blood is of a mucous, vapid, and acedent nature. *Epist. Var. Arg.* p. 105. 106.

† Waldschmid, according to Allen, in his *Synopsis*, § 347. has recommended both the internal and external use of mercury in the cure of palsy. It has been recommended likewise by Barbetta, but to the extent of exciting ptyalism, by which he affirms that apoplexy may be cured (*De Apoplex.* c. 2. note c. p. 31.). But this remedy was esteemed of such value by Bertini, that he employed it not only to cure apoplexy and palsy, but also to prevent them (*Dell' Uso dell' Mercur.*). And a similar opinion is entertained by his former pupil Ghis, now a celebrated physician at Cremona, who prescribes the employment of cathartic mercurial pills, which he is in the habit of using, but more prudently than others, as he confines their praises only to the cure of the serous and phlegmatic apoplexy and palsy: contrary to the practice of Rotari, that unqualified admirer of the employment of mercury, who without hesitation has proposed it in both kinds of apoplexy and palsy.

‡ *Comment. de Reb. in Scient. Natural. et Med. gest.* vol. ii. p. 636. 637. vol. iii. p. 467. vol. iv. p. 69. 299. vol. vi. P. ii. p. 316. and elsewhere; although Nolletti does not subscribe to the opinion.

|| The effects of electricity observed to take place in the human body by Tissot are, 1. Acceleration of the pulse; 2. increased heat, and plethora; 3. fuller expirations, sometimes looseness of the belly, and a copious discharge of urine; 4. various hemorrhages, particularly of the nose; 5. pain of the part which is touched, injury of the skin, and involuntary contraction of the muscle; 6. a convulsive shock, subsequent debility of the head, vertigo, anxious and disturbed sleep; 7. lassitude; 8. anxiety at the chest; 9. sometimes universal palsy, and death; 10. its proving fatal, like lightning; 11. the vessels of the brain being found, after death, turgid

and dilated; 12. the same and more severe symptoms occurring in animals killed by electricity, with an effusion of blood in the brain and heart: *Epist. Var. Arg.* p. 107. 108. *et seq.* Hence he inquires, what will be the use of electricity in paralysis? and replies to himself by observing, that it has been serviceable in the palsy occurring in gilders. It will prove serviceable in the paralysis proceeding from the *colica saturnina*; for in both cases fever, plethora, and vitiated states of the brain, are absent, which conditions, he thinks, are necessary for employing it with advantage (*Ib.* p. 109.). It is proper to observe, however, that the medical effects of electricity vary according to the different manners in which it is employed. Its employment is threefold; namely, either that which is intirely simple, or which is attended with the extraction of the electrical sparks, or with the explosion of the Leyden phial. I am generally in the habit of employing the first or second method, satisfied with charging the patient with electricity for a considerable length of time. I very seldom use the third method; and when I do so, it is with the utmost caution. Puibus, Veratti, and other Italian physicians, employed a pretty similar method, without ever experiencing any bad effect at least of consequence. Beccaria also, when asked his opinion on the subject, recommended the more gentle method (*Consult. Med.* T. i. conf. 63. p. 161.). It is with very great pleasure that I have of late observed this same method, which may be said to be of Italian origin, adopted by Mauduyt, a French physician of celebrity, in a letter replete with sound doctrine and medical knowledge, which is to be found in the *Medical Journal of Paris*, T. 49. *Mens. Jun.* p. 509 *et seq.*

§ Vid. Jos. Collin. P. iv. *Observ. Morb. Acut. et Chron.* &c.

¶ *Lib. Circa Morb. Virgin.* n. 2.

143. In the Philosophical Transactions*, we read an account of a paralysis of the palpebræ, which returned every night, having been cured

by the dropping of water on the back of the neck and occiput. With this view, the hot springs of Aponus, Luca, Pisa, Cassino, Viterbo, Aquapendente, &c. are recommended here in Italy. For removing a palsy of the tongue, Langeus † prefers to all other remedies the distilled oil of cinnamon, and recommends applying to the parts affected a bit of sugar on which a few drops of this oil have been poured. With the same intention, my former preceptor, and predecessor in the Clinical Chair, Lawrence of Bologna, chief physician to Pope Benedict XIV. used to cause the tongue to be rubbed with the spirit of black cherries. A good many other authors affirm, that the power of speech has been frequently recovered in consequence of drawing blood from the sublingual veins ‡. It is likewise attended with benefit to stimulate paralyfied parts with scourges and nettles; or they may be advantageously exposed to the vapour of burning spirits of wine ||, in order to call forth the sweat, particularly in corpulent people. Likewise the immersing of the limbs in new wine, and fomenting them with it, is pretty strongly recommended. For all the vessels and fibres are gently stimulated by the heat and pungent vapour exhaled by the fermenting wine. Tissot, although he asserts that it frequently proves nugatory, is obliged, from experiencing its efficacy,

to confess that it has occasionally been attended with advantage §. It frequently happens that the legs and feet of scorbutic people are liable to *paresis*, or a peculiar and imperfect paralysis; to pass over that one which arises from a fall, blow, wound, or luxation of the vertebræ. In attempting its cure, every person knows that we must have recourse to antiscorbutic remedies. Thus the paralysis of the lower extremities, which succeeds to venereal complaints, and which is of pretty frequent occurrence, ought to be opposed in conjunction with the primary complaint, of which it then clearly appears to be a symptom. I have frequently had occasion to treat this species of palsy, and I have removed it by means of gently rubbing in mercurial ointment, and diaphoretic decoctions. Houstet likewise removed a palsy of the bladder, anus, and legs, which had proceeded from the venereal virus, by the rubbing in of mercurial ointment ¶. Moreover histories of palsies, unconnected with any venereal taint, having been cured by means of mercury, are recorded: the most remarkable of which seems to be that one published a few years ago by Cavalli **.

* N. 449. § 4.

† *Miscel. Veritat.* Fascic. c. 1. § 8.

‡ Among those is Lancisi, who, speaking of a person labouring under hemiplegia, deprived of the power of speech, observes: "The aphonia, which could not be removed by the injection of clysters, the exhibition of volatile salts, and the ap-

plication of blisters to the thighs, arms, and nape of the neck, was surprisngly and suddenly removed by one bleeding from the sublingual veins.

|| Barbeirac. *Formul. Medicin.* p. 362. § *Epist. Var. Arg.* p. 104. ¶ *Mem. de l' Acad. Roy. de Chir.* T. iv. p. 141. ** *Storia d' una Reumatica Paralisi Curata coll' Unzion. Mercuriale. Venez.* 1767.

144. Nor must I omit mentioning the case of two persons, who, after having become paralytic in consequence of the noxious exhalations of quick-silver, were completely cured by means of the *aurum fulminans* *. In the last place, the *spurious* species of paralysis (92. 93.) cannot be better treated than by selecting and adapting our medicines to the variety of the causes by which it has been induced. Hence deobstruent, antiscorbutic, resolving, purifying, antiseptic, volatile, restorative, strengthening, and stimulant remedies, and such as I have already enumerated, (137. 142. 143.), will be proper; while we must pay particular attention to the rules laid down in pathology, and general therapeutics.

* *Gazzett. Medic. di Venez.* n. 11. ann. 1763, di P. Orteschi.

145. It frequently happens, as I have already (92.) observed, that, after the removal of the complaint, the patient is incapable of extending the fingers and other parts, because the ligaments of the joints and the flexors, on account of

having remained so long unstretched, and become shorter, have acquired such rigidity, that the power of the extensors cannot overcome their contraction. We must then have recourse to the mildest and most emollient remedies. But the most efficacious method of mollifying and elongating such contracted and rigid parts, is the immersing them into the belly of newly slaughtered animals, and keeping them there as long as the heat continues; and afterwards anointing, fomenting, and rubbing them with the mildest liniments made of fat and marrow. For nothing proves more efficaciously penetrating and relaxing than the aqueous animal vapour, and very subtile oils collected in the cavities of the bones. After this remedy, the next rank is held by the steam of warm water, which frequently produces wonderful effects in relaxing and softening the fibres.

146. In the cure of these comatose affections (91. to 95.), we ought to pursue nearly the same course as in the treatment of apoplexy itself (123. to 143.), as they proceed from nearly the same causes (75. 76. 77. 78. to 85.) which occasion apoplexy. The cure of them, therefore, intirely depends upon that of the latter complaint.

147. Lastly, it is of great consequence to point out the diet and regimen best calculated for apoplectic patients. At the height of the disease, it

is proper to employ as spare diet as possible, and afterwards to indulge the patient in something generous, at the same time prohibiting every thing of a viscid, glutinous, acrid, and heating kind. It is proper also that he should abstain from whatever occasions plethora, or an effervescence in the blood, or propels it too copiously to the head. Hence the greatest rest both of mind and body ought to be enjoined; the temperature of the bed-chamber ought to be so regulated as to rather incline to cold, and the air ought to be frequently renewed. But as the disease is apt to return, if a patient has once laboured under it, he ought to carefully guard against sudden cold, the heat of the meridian sun, damp weather, fits of passion, fire, and heat. During the solstitial and equinoctial periods, if he be plethoric, the quantity of blood ought to be diminished by venesection. He ought to confine himself also to vegetable and acescent diet, and his drink ought to be simple water. He ought to take no supper, or only a very slight one, to avoid sleeping especially after meal-times, and to undergo occasional evacuations. He ought to take one or two drachms of cream of tartar twice or thrice a-week, and most studiously avoid all the causes, in consequence of which he was formerly predisposed to apoplexy *.

* Tissot, *Epist. Var. Arg.* 73. 74. 75. *et seq.*

CHAPTER V.

OF

CATALEPSY, ECSTACY, AND SOMNAMBULISM.

148. THERE is a great affinity between the comatose affections and a very wonderful disease, of rare occurrence, named by the Greeks *catalepsy*, and *catoche**. It might be translated into Latin by the words *interceptio*, *comprehensio*, *detentio*, or *occupatio*; for persons attacked with it immediately become deprived of their senses, both internal and external, particularly the sense of touch and voluntary motion. They do not fall down, however, as in apoplexy or syncope, but remain in the posture in which they happened to be when the disease attacked them; and are wonderfully apt to assume and retain every attitude into which they are thrown. Galen † names such persons *catochi*; but Celsus, according to Morgagni and Van Swieten ‡, denominates them *attoniti* ||; adding, that,—unless the text in that part be faulty—the disease is likewise named by the Greeks *apoplexia* §. The other synonyms employed by the ancients may be seen in Cœlius Aurelianus, who, as usual, has given a very faithful account of catalepsy ¶. The chief of them, however, are, the *aphonia* of Diocles and

Hippocrates ; the *anaudia* of Antigines Cleophantinus ; the *lethargia* and *sopor* of other authors ; the *congelatio* of the Arabians ; and the *stupor cum rigiditate* of Plater **.

* Lieutaud classes this affection among the convulsive diseases : *Précis de Méd. Malad. Intern. de la Tête*, l. 1. p. 212. But no rigor or spasm, no convulsions, are observable in the true and simple catalepsy. Others consider it as being a mixed affection, composed of a comatose and convulsive one. But in consequence of the *insensibility* and *immobility*, which are observed to take place in it, I am of opinion, with Vogel, that it ought to be referred to the *morbi adynamici*.

† *Ex* Galen. *De Causs. Puls.* P. iv. c. 16. Castellius. ‡ Morgagn. *Epist. Anat. Med.* ii. n. 2. Van Swieten. *Com. in Boerhaav.* vol. iii. § 1007. || Lib. iii. c. 26. § L. c. ¶ *Acut. Morb.* lib. ii. c. 10. 11. 12. & *Tard. Passio.* lib. ii. c. 5.

** Tissot affirms that the catalepsy of Cœl. Aurelianus is altogether different from ours : *Trait. des Nerfs et de leurs malad.* T. iii. P. ii. c. xxi. In fact, the *catalepsis*, or *catoche*, of Cœl. Aurelianus seems rather to belong to *ecstasis*, or spurious catalepsy, of which I shall shortly treat.

149. The principal peculiarity of this disease is, that if the patients are standing at the time they are attacked, they remain in the very same place ; if sitting, they continue so ; if with their eyes open, they keep them open ; such as were walking at the moment of the attack retain that appearance, preserving their limbs in the same posture in which they had placed them :—but they neither think, nor speak, nor move, unless

impelled by some force. Such is the *true* and *legitimate*, or perfect catalepsy * (148. 149.), as it is almost universally delineated by modern authors. For it is doubted, and with good reason, whether by this name the ancients always understood one and the same affection, or different ones †. It is also very probable, if not indisputable, that all the diseases to which modern authors have given that name, completely correspond with perfect catalepsy ‡; which will readily appear to every one who chuses to give a slight perusal to any compilation of observations on the subject.

* Catalepsy is thus defined by Sauvages: "The sudden suspension of the senses and muscular motion, the pulse and respiration generally remaining very obscure, and a wonderful pliability in the limbs to assuming and retaining every posture into which they are put." *Nosol.* cl. vi. ord. v. gen. xxv. Nor does Home's definition of the complaint differ greatly from this one, as he says, that it is present "when the patient remains fixed in the same state in which he was attacked, being deprived of the internal and external senses." *Princ. Med. de Morb. non Feb.* P. ii. sect. 7.

† See the *British Journal* for June 1751, or *Comment. de Reb. in Scient. Nat. & Med. gest.* of Ludwig, vol. i. P. iii. p. 114. *et seq.* where it is shewn that the catalepsy of Cœlius Aurelianus is extended to various other affections.

‡ Vogel in *not. ad* § 572. *De Morb. Cognosc. et Curand. cap. de Catalepsi*, p. 473. where mention is made of a good many cases erroneously taken for epilepsy, to which I could add many more, did my limits permit. I find that Tissot entertains the same opinion.

150. But as all these symptoms (148. 149.) do not uniformly, nor to the same extent, occur in all patients, it became necessary to establish another species of the complaint, which is named *imperfect* and *spurious*. For some cataleptic patients retain sensation, but remain quite mute, and are intirely deprived of voluntary motion. Others retain some sense and recollection ; or do not retain the particular flexure of their limbs, at least firmly, gradually relapsing into their former attitude and posture*. Some, while they are capable of moving one hand, or a limb, are stiff all over the body, but not so much so as in tetanos ; while others, again, although they neither hear nor see, nor feel when pricked, remaining like dead people, notwithstanding immediately swallow whatever is put into their mouth. In whatever of these ways, or similar ones, persons are affected, they are said to labour under *imperfect* and *spurious* catalepsy.

* Vogel. l. c. § 569.

151. Both species of the complaint (149. 150.) attack the patient, either unaccompanied with any other disease, or they are conjoined with other complaints, as hysteria, madness, melancholy, somnambulism, epilepsy, &c. ; or easily pass into them. Hence flows another distinction into *simple* and *compound*. It is likewise said to have sometimes been observed as a symptom of acute and intermitting fevers, particularly of the tertian and quartan fever ; and then, as is manifest,

it obtains the name of *symptomatic* or *secondary*. Moreover, the distinctions derived from the different causes are purposely omitted by me, that I may avoid too great minuteness in such nice and superfluous divisions and subdivisions.

152. Sometimes, though rarely, the paroxysm is preceded by particular symptoms. At times a degree of stupor of mind and body, or headach, occur previously; in some cases an obtuse pain in the back of the head*, in others stiffness of the neck are felt†. Next the disease comes on suddenly, at once depriving the patient of sense and motion. A few minutes afterwards, more rarely a few hours, very seldom after a longer period, the patient awakes, as it were, from sleep, sighs, and returns to his usual occupations, perfectly unconscious of any thing that has passed. The same complaint returns at intervals, and sometimes at very distant ones, or it frequently observes a certain period, and then it ought to be named *catalepsis periodica*. It is a very remarkable circumstance, that the countenance retains its natural colour and healthy appearance; that the pulse is more frequently great and rare, than small and fine, contrary to what Sauvages has affirmed‡; that the respiration is generally very gentle and faint; that the eyes remain open, and immoveably fixed upon a spot; and that the *simple* and *primary* complaint is altogether free from fever.

* Forest, l. x. obs. 42. † Henricus ab Heers, obs. 3.
De Haën, *Rat. Med.* P. iv. c. v. § 3. p. 185. ‡ *Nosol.* l. c.

153. The proximate cause of this disease seems to be still unknown. The brain and nerves in particular are affected; but in what this affection consists, no one hitherto, as far as I know, has defined. Without doubt the nerves retain some power in acting on the muscles, as the body is still supported, and not resolved, as in palsy or apoplexy. But there is no access from the external organ to the *sensorium commune*; or, if there is, the impression or sensation made by objects is not perceived by the mind. Where, then, is the sensibility of the nerves? Neither can the *sensorium commune* represent any thing to the mind, nor can the mind reflect, or will, in consequence of the natural communication between it and the brain being cut off. “There is therefore no paralysis of the muscles,” as De Haën observes*, “but there is also no motion.” What then is there? There is a continuation of that which was present in the last moment of health requisite for natural motion, which would support itself in the part formerly moved. Nay, if any person present change the patient’s posture, and put him into another, forcing other muscles to act, it is almost the same as if the *sensorium commune* bestowed new powers upon these new muscles, to preserve this posture, and that in the most obstinate manner. Let us suppose, that

what we observe takes place in the body, occurs also in the mind. For how often has it not been observed, that the last idea uttered by the patient, immediately before the paroxysm, remains so unchanged as to become the first pronounced on recovering from the catalepsy, however long it may have continued †?"

* L. c. p. 189.

† I have likewise frequently observed this in the most violent hysterical affections, which is more surprising; but particularly in a marriageable young woman, who was attacked almost every month with a hysterical paroxysm. Upon these occasions, laughing, singing, and universal clonic convulsions and spasms succeeded each other. Frequently, while speaking or singing, she was suddenly seized with clonic convulsions, together with the loss of sense. After the whole body, for a considerable length of time, sometimes for half an hour, had been convulsed, and the head had been turned round with great velocity from side to side, on a sudden all these inordinate motions ceasing, her loquaciousness, or singing, returned, commencing with the words of the conversation or song which had been last broken off, and she continued to observe exactly the same tenor in her speech or song:—a phenomenon occurring after such violent derangement, scarcely to be credited, far less to be explained.

154. But from these facts what light can be thrown upon the proximate cause of the complaint? De Haën candidly confesses that little is to be derived from this source. He observes: "The laws of the wonderful connection subsisting between the mind and body are unknown.

We are totally ignorant of those parts, by means of which this commerce is kept up ; we know not by what law they touch and move themselves, and again stop *.” But Delatour †, by no means deterred by the difficulty of the investigation, while he laughs at the opinion of the ancients, concerning what they called an *intemperies frigida*, forms another, which, if it does not proceed from that of the ancients, at any rate does not seem to differ much from it. In consequence of the fullness of the arteries and veins, which, as Boerhaave tells us, has been discovered in the brain of persons who have died of catalepsy, he does not doubt that its cause is too great abundance of the blood and nervous fluid, from which he is persuaded that the chief symptoms of the disease may be understood and explained. For he is of opinion, that in consequence of this all the nerves become so turgid, that on account of a certain species of plethora, they grow torpid, and incapable of performing any action, contrary to what happens in paralysis, which implies rather a defect of that fluid, or in convulsions which seem to proceed from its irregular motion and distribution. Upon the idea of such a torpor of the nerves, on account of plethora, and consequent lentor of the nervous fluid, he flatters himself that we may easily explain the equilibrium, and, as it were, stiffness of the whole body, the anæsthesia,

or perfect insensibility, and its great susceptibility of assuming and retaining any posture or attitude.

* L. c. p. 191. † *Récueil Period. d' Observ. de Med. par M. Vandermonde*, T. v. p. 45. *et seq.*

155. But we are prevented from prematurely adopting Delatour's opinion, by other anatomical dissections of persons who had died of catalepsy, in whom, besides blood, there was also found an effusion of serum, rather occupying the back-part of the head, or at least a watery colluvies, or reddish serum collected in the back-part of the head, and polypous concretions, and at the same time the lungs and liver have been found in a state of corruption*. We are prevented also from adopting it by the cautious doubt, whether that fulness of the vessels ought to be considered as the cause or effect of catalepsy. An objection to it is also afforded by the patient's very speedy recovery after an exceedingly short paroxysm, and the ready and sudden relapsing into the complaint, merely from a sudden and violent commotion of mind, as it is scarcely conceivable that so great a plethora of all the vessels of the brain is removed in a moment's time, and instantly brought back by an emotion of mind. Lastly, the predisposing causes of the complaint, as worms, terror, bad news, which point out neither excess of the blood nor other fluids, prevent our adopting Delatour's notion. Moreover,

if excess of the blood and nervous fluid occasion the disease, why is it not quickly resolved or prevented, by bleeding, abstinence, and early evacuations, all of which, on the contrary, generally prove useless, if not hurtful? Why, if the muscles possess any nervous power, is it not equally subservient to the formation and perception of sensations and ideas?

* Lieutaud, l. c. Schenck, *Obs. Med.* l. 1. *De Catoccho*, obs. 2. Holler, *De Morb. Intern.* l. 1. c. 9. *in schol.*

156. Probably Home has approached nearest to the truth, in supposing that the proximate cause of this complaint is *a flow of the nervous fluid into some nerves*, and *a stagnation of it in all the others*; or, as I imagine, he supposes that some action remains in the nerves distributed to the muscles of voluntary motion, as most of those are which proceed from the spinal marrow; but that the *sensorium commune* becomes quiescent, and, as it were, lulled, probably along with those nerves which are subservient to sensation, as the ones proceeding from the brain, or intercostal pair, or great sympathetic, generally are. But who has demonstrated that the nerves belonging to the muscles of voluntary motion may not also be subservient to sensation? But let us grant Home's supposition to be true; the manner in which this takes place is still involved in great obscurity*.

* *Princ. Med.* P. ii. *De Morb. non Febr.* sect. vii.

157. Nor do the moderns seem to have been more successful in establishing the proximate cause of catalepsy, notwithstanding of their having applied to investigate it with all manner of care. It will therefore be better to pass it over, and proceed to the remote and manifest causes of the complaint. According to accurate observation, these are reduced to long-continued cares, and exertions of thought; deep study; great grief; terror; bad news suddenly imparted; passionate love; catching cold; the suppression of the menstrual or hemorrhoidal evacuations, or other excretions; hysteria; hypochondriasis; a thick and glutinous state of the blood; a melancholic, mucous, and flaccid temperament; the forcing in of cutaneous eruptions; dyspepsy; worms; the fumes of charcoal; excess in drinking of wine; ebriety; rage; somnambulism; quartan fevers; and other intermittents of long standing, of which catalepsy is at times a symptom; the being struck with lightning, as Celsus tells us; serum effused within the skull, or a congestion of thick, black, stagnant blood in the vessels of the brain (154.), particularly in those of the occiput.

THE DIAGNOSIS.

158. THE diagnosis may be collected from par. 143. 149. 150. Nor will it be difficult from thence to know by what signs to distinguish

catalepsy from other similar affections. Some consider ecstasy as being the same affection with catalepsy, while others entertain a different opinion. Among these last, Sauvages affirms that ecstasy differs from catalepsy, “because the limbs do not retain every situation into which they are put, and the patient constantly preserves the same posture which he had at the beginning of the attack, and is deprived of all sense and motion *.” What then? Does not this definition of ecstasy convey the idea of that species of catalepsy which is named spurious or imperfect (150.)? But Vogel is of opinion that the patients become *ecstatic*, when those who labour under catalepsy imagine that they see preternatural appearances and visions, and converse with angels; or when they speak languages which they never learnt; nay, they are said to predict future events †. But it does not follow from thence that the complaint of such patients differs so much from catalepsy, as not to be referable to the spurious and imperfect species of the disease (150.). The *ecstasis catochus*, or catalepsy of Henricus ab Heers and Tulpius, the *ecstasis cataleptica*, and the *ecstasis resoluta*, described by Sauvages ‡, seem to be varieties of the spurious or imperfect catalepsy, or at most seem to be complicated with other affections, and therefore do not require a particular explanation.

* *Nesol.* cl. vi. ord. v. gen. 24. † L. c. § 569. ‡ L. c. gen. 25.

159. As somnambulism more decidedly differs from catalepsy, I shall accordingly treat of it apart. In it, as in the most profound sleep, all the sensations seem to be wanting, except, perhaps, that of the touch, in consequence of which sleep-walkers are enabled to avoid obstacles thrown in their way. But the imagination is very vivid, and the voluntary motions are readily and regularly performed: although instances are recorded of persons who, during somnambulism, do not see, but hear, return answers, and perform other actions, according to custom, as if they were awake. Nay, instances are recorded of somnambulists, who not only speak and return answers when questioned, but likewise dispute, read, write, and take a hand at cards; which could not be done without some degree of sight, unless we suppose that in such cases some fraud is practised. For no disease is more frequently feigned by impostors than somnambulism, ecstasy, and catalepsy, as many besides myself have repeatedly remarked. But I consider them as nearly allied, because they frequently succeed to each other, or are combined together. It is, moreover, to be observed, that they are sometimes conjoined with epilepsy, convulsions, delirium, and other diseases, in conse-

quence of which the diagnosis of the complicated and anomalous complaint becomes difficult.

* Sauvag. *Nosol.* cl. vii. ord. ii. gen. vi.

160. Somnambulism is a manifold complaint, according to the variety of its degrees. It is properly distinguished into *common* and *furious*, or complicated. That species is denominated *common*, in which a person is affected with sleep, from which he can be roused, however, contrary to what happens in the *furious* and *complicated* species. In the *common species* Sauvages remarks two degrees to take place, a slighter and a more severe one. In the slighter degree of the complaint, the subjects of it are generally attacked at night after their usual sleep, *they do not rise out of bed, but move themselves, and speak*; they quarrel, and throw about their arms as if in the act of defending themselves against enemies or robbers, to their own great risk, and the fear of those about them. But in the more severe species, they rise out of bed, put on their cloaths, light the candle, look for keys, open doors, draw wine, and perform many other actions without awakening*. Others sit upon the bottom of the window, and, supposing themselves to be bestriding a horse, throw themselves into the attitude of spurring it. Some swim across rivers. Others do all these things with their eyes open, and yet do not awake*. In a word, every individual, according

to his different habits and way of living, performs different actions, as if awake. It is worthy of remark, that they expose themselves to the most perilous situations, and approach the brink of the most dreadful precipices, with impunity, providing they are not roused ; for, when they are, being thrown into alarm, they fall headlong †. Others, again, if they are imprudently or rashly awakened, become frantic.

* Sauvages, l. c. † Vide Hildanus, cent. 2. obs. 84. 85.

161. We name that the *furious* species, in which, after a short kind of slumber, or stupor, a person immediately begins to commit actions which he is not accustomed to perform, conducting himself like a madman. It is named *complicated* on account of being frequently combined with, or succeeding to, other diseases. This species was denominated by Sauvages *cataleptic* *, on account of originating from catalepsy, and next terminating in somnambulism. He adduces an instance of it from the Upsal Transactions, where the name of *catalepsis delirans* † is given it, and from the Commentaries of the Parisian Academy ‡. He says that it would be named with greater propriety *catalepsis somnambulans* ||. In this species the patients, like frantic or delirious persons, sing, hiss, exult, dance, entreat, run about, and, moreover, tell ludicrous, obscene, or filthy stories, while they are all the time completely deprived of the sense of sight, touch,

hearing, smell, and taste. But this kind of somnambulism does not succeed to catalepsy only; and therefore in general the name of *cataleptic* does not answer it: for it also succeeds to hysterics, convulsions, epilepsy, and other diseases. Hence it will be more proper to distinguish it into *cataleptic*, *hysterical*, and *epilectic*, and so forth, according as it shall be discovered to depend upon one or other disease. But in this species it may be affirmed, as an uniform characteristic of it, that the patients cannot by any means, as in the common species, be roused, but that, after a particular time, which is sometimes longer, sometimes shorter, the fit goes off spontaneously.

* *Nosol.* cl. viii. ord. 1. gen. vi. sp. 2. † *Act. Acad. Upsal.*
 an. 1732. p. 41. ‡ *Ann.* 1742. || *Nosol.* cl. vi. ord. v.
 gen. xxiv. sp. 6.

162. In both the slighter and more violent degree of the common species of the complaint, many circumstances occur (160.) which happen to people during sound sleep. The external senses are almost intirely suspended, while the imagination is so affected by internal causes, that lively images of ideas are represented to the mind, although they are not such as to interrupt the sleep. But according to the different train of ideas the will is impelled to this or that action, and the instruments of motion, as in convulsions and spasms, as if compelled by force, obey its

influence, without the external senses being awakened. In what manner, however, and by what intimate causes these things take place, is not involved in less obscurity than it has been said to be in catalepsy and ecstasy. In the furious and complicated somnambulism, as greater agitation of mind takes place, so more violent affections and motions, both mental and corporeal, arise. But as not ordinary images of things are represented to the mind, but unusual and extraordinary ones, it is not surprising that a person labouring under the complaint should resemble one in a state of phrensy or madness. Add to this, that in the *common somnambulism* the causes inducing sleep, although severe, do not lull the senses so much that they cannot be excited by obvious causes, although with somewhat more difficulty : while the contrary happens in the *furious somnambulism*, in which the causes producing it act with more violence and obstinacy, so that the senses, being almost overwhelmed, cannot be recalled until a certain length of time, when these causes of their own accord cease to act. It is therefore probable that the brain is acted upon by nearly the same causes which I have mentioned as operating in catalepsy and other comatose affections, not to mention a natural and hereditary condition of the brain and nervous system, which occasionally may occur. But the more manifest causes are the predisposing ones. For frequently

somnambulism has been observed to arise from intoxication, or the use of strong wine, from a heavy supper, from food which is apt to occasion flatulency and difficulty of digestion, from too great a load of bed-cloaths, from lying on the back with the head depressed, from opium and similar narcotic medicines, from studying after supper, and from sleeping immediately after meals; and from preceding diseases of the brain, particularly catalepsy, epilepsy, lethargy, convulsions, hysterics, and so forth.

THE PROGNOSIS.

163. CATALEPSY, upon the whole, is considered as being a dangerous disease, as, unless it is quickly cured, the patients are said to die of it in a state of stupor, and, as it were, stiff with cold. Postelli has shewn, in three cases which he adduces, that this complaint frequently terminates in apoplexy, or a fatal carus *. The greatness of its danger is confirmed by Allen, who observes: "In general very few recover; and no one who has been a second time attacked †." Not a few cases are recorded by other authors, and I myself could produce several, of perfect, imperfect, and complicated catalepsies, which, although of long continuance, and frequent occurrence, occasioned no danger, and were at length

successfully removed. The danger is the greater the more severe the symptoms are, particularly if the disease is attended with difficulty or interruption of the breathing, squinting, suppression of the fæces, and resolution of the strength. Which is likewise hinted by Hippocrates, who observes: “When catoche or aphonia takes place, with resolution of the strength, it is attended with danger †.” Catalepsy is considered as more dangerous than lethargy. That also which occurs in the melancholic temperament is more difficult of cure than when it occurs in the sanguineous temperament, and when cured commonly degenerates into melancholy. That which is of long continuance generally is both apt to return, and readily terminates in epilepsy and other very severe affections of the head. Sometimes it is resolved by a copious epistaxis from the nose, or by the menses, or by a bilious diarrhœa ||, or some other similar critical evacuation, or by changing the manner of life, or by travelling, or marriage. Many of these things are in common to ecstasy and somnambulism; but persons labouring under the latter run less risk, particularly children, young men, and unmarried women.

* *Journ. de Med.* T. xx. p. 407. † *Synop. Med. Pract.*
 art. 867. ‡ *Prorrhët.* l. 3. sect. 4. || *Vid. Avvisi Sulla*
Salute Umana; del 1776, p. 393.

THE CURE.

164. THE cure depends very much upon that of apoplexy and the other comatose affections. It is commonly considered as twofold: first, that which must be adopted during the paroxysm; second, that which must be employed after it. During the paroxysm we ought, in my opinion, to abstain from acrid and heating remedies, particularly if the accession has been occasioned by hysteria, or by an excessive quantity of blood, both actual and apparent, or by any violent emotion of the mind; and my opinion is supported by that of Hoffman *, who thinks that all these ought to be avoided, even externally. In plethoric patients it is serviceable to let blood, both from the common veins and from the jugular ones, as well as from the nose. For Aetius observed a cure instantly performed in a boy labouring under catalepsy, if in fact that was the complaint, by a copious hemorrhage from the nose †. Acid, anodyne, and stimulant remedies, administered both internally and externally, are then principally recommended ‡. I once cured a grown-up young woman, of a very sanguine habit, who was liable to long-continued and periodical attacks of imperfect catalepsy, attended sometimes with very violent convulsions, at other times with furious som-

nambulism, who received scarce any relief from two or three bleedings from the feet and arms, but was at once restored to health by opening the jugular or frontal vein. Errhines are said to be generally employed without any effect. If the fomes of the complaint be contained in the stomach or neighbouring parts, emetics are considered as safer after blood has been drawn. Injections and laxatives, rubbing the spine of the back with ointments, fomenting the inferior parts, gentle friction, and likewise bland epispastics, if the shortness of the time does not prevent their employment, are not considered as inefficacious.

* *Med. Rat. Syst.* T. iv. P. 3. c. 4. in *Cautel et Monit. Pract.*
 § 1. † *Tetrab.* ii. serm. 2. c. 4. ‡ Hoffm. *ibid.* l. c.

165. When the paroxysm is not present, we ought to employ those remedies which correct, remove, or prevent the cause from which the complaint has proceeded. Hence, that species of catalepsy which is named from worms occasioning it, is treated with anthelmintics and laxatives. Benedictus makes mention of a girl of eight years of age, who had laboured for seven days under a disease very like catalepsy, having been immediately cured in consequence of a great deal of fordes and worms having been drawn off by means of a pessary of honey introduced into the anus *. Another young woman, labouring under ecstatic or imperfect epilepsy, which was

at the same time combined with hysterical convulsions, and had proceeded from suppression of the menses, and worms in the intestines, was cured by means of anthelmintics, gentle emmenagogues, and antispasmodic remedies, but particularly oily injections, walking, and riding in a carriage in fine weather †. A third one, who had scarcely passed her twenty-fourth year, being seized with the ecstatic epilepsy in consequence of having been long engaged in meditations upon her past life, after bleeding and various topical and exciting remedies had been tried to no purpose, at length gradually recovered merely by change of air and travelling about ‡. We learn from the *Upsal Transactions* ||, that one Magdalena Valetta, after long labouring under a catalepsy proceeding from grief,—which was at first genuine, and next was combined with delirium and somnambulism, or became, as Sauvages names it, the *catalepsis somnambulans*,—and, after repeated bleedings and all kinds of antiepileptic and alterative remedies had been tried in vain, being left merely to the care of nature, at length gradually recovered her former health. Another young woman also, about twenty-one years of age, in consequence of lowness of spirits and suppression of the catamenia, fell into genuine catalepsy, which was next succeeded by violent convulsions of all the limbs, together with delirium. She continued for a long time to be

occasionally afflicted with these complaints. Reynelli attempted to cure her by means of emetics, cathartics, bleeding, blistering, stimulant, calefacient, and volatile remedies, but to no purpose. At length she obtained relief from the employment of the tincture of black hellebore, which excites the flow of the menses, and spirit of hartshorn, which proves gently resolving and opening; though her relief probably ought to be ascribed to time, and the omitting of the violent medicines, with which she had formerly been distressed §. Delatour in like manner in vain attempted the cure of a cataleptic girl, of thirteen years of age, by means of blisters, leeches, the bath, and antihysterical remedies ¶. For, although by these means the accessions were rendered milder, they could not be made to cease until the spontaneous return of the menstrual discharge, which did not happen until two years afterwards.

* *De Cur. Morb.* l. i. c. 26. † Hoffman, l. c. obs. 1.
 ‡ *Id. ib.* obs. 2. || Sauvages, cl. vi. gen. 24. sp. 6. § *Philos. Transact.* an. 1735. p. 47. ¶ *Récueil Periodiq. d'Observ. par M. Vandermonde*, T. v. p. 41.

166. It appears to have been a surprising cure which Michell performed, by means of semicupium and mercurial ointment, in a young woman who had been almost completely overwhelmed with catalepsy and coma for the space of two months *. That species of catalepsy which

is induced by fear in particular requires, besides bleeding, cordial and antispasmodic remedies; those which are friendly to the nerves, narcotics, nay, opium itself. But Mazars † removed a catalepsy, which had been occasioned in this way, by the employment of aperient, cephalic, and purgative remedies; and we find that Postelli ‡ employed a similar method of cure with success, having had three opportunities of treating this complaint. That species which supervenes on tertian, quartan, and other intermitting fevers, or rather which accompanies their paroxysms as a symptom, is very quickly dispelled by employing the peruvian bark. Had Ballonius been acquainted with this valuable remedy, I have no doubt that by having recourse to it he would have saved a patient labouring under a catalepsy, which depended on a quartan fever, who was carried off on the third attack of the complaint ||. But the species of catalepsy which originates from long continuance of the disease, as sometimes happens, without doubt requires analeptics and restoratives. As Ballonius, however, is of opinion that the same species arises from too great a quantity of serum, which the paleness and œdematous appearance of the face usually indicates, he prescribes hydrogogue and diuretic cathartics §. But care must be taken not to completely reduce the system, already in a state of exhaustion, by these evacuations.

* *Récueil Period. d'Observ. par M. Vandermonde*, T. xi. p. 109. † *Journ. de Med. (le même)*, T. xvi. p. 131.
 ‡ *Ibid.* T. xx. p. 407. || Sauvag. l. c. gen. xxiv. fp. 7.
 § *Id. ib.*

167. A boy of ten years of age had been for a long time sadly distressed with frequent and irregular attacks, though generally of short continuance, of genuine and perfect catalepsy, and next with furious and cataleptic somnambulism, such as is described by Sauvages, and that too twice or thrice every day, insomuch that he was considered by weak-minded people as being possessed with a devil. Bleeding, antepileptic, anthelmintic, and purgative remedies, together with peruvian bark, wild valerian root, and iron, had been employed to no purpose. Being at length brought into the hospital by his parents, as I could not discover any other cause of the complaint than very acute sensation, and, as it were, excessive mobility of the *sensorium commune*, merely by the constant employment of camphor, gradually increasing the dose, I restored him to health, contrary to all expectation, within the space of two months: and two years afterwards, on inquiring into the state of his health, I learnt that he had continued perfectly well all along. It is unnecessary here to say any thing concerning the cure of the species of catalepsy which is occasioned by the fumes of charcoal, or noxious vapours, or lightning, as I have already said

enough on that subject in the chapter on apoplexy and the comatose affections *. The plan of cure which is calculated for *ecstasy* and *somnambulism* will readily be collected from what has been said of the cure of catalepsy, which does not seem to differ much from them.

* Histories both of the *genuine*, and *spurious*, or *complicated* catalepsy, are quoted by Vogel; and we are told by him, that all the descriptions of catalepsy to be found in the works of authors, are not really such, but that many of them apply to tetanus, coma, or stupor (*De Cogn. et Cur. Morb.* § 572.). To this catalogue of Vogel's may be added that one which Tissot has very carefully compiled, cap. xxi. *De la Catalepsie, de l'Ecstase, et de l'Anæsthesie*, in Tom. iii. P. ii. *Treatise Des Nerfs et de leurs maladies*. Likewise two accounts, the one of genuine catalepsy, combined with a spasm of the whole body, the other of the spurious one, conjoined with a certain rigidity, both of them occasioned by fear, are to be found in Tozzetti, *Prim. Raccolta d'Osservaz.* p. 97. and several others, accompanied with a lethargy, from which there was no rousing the patient, are published by Manetti, *Mag. Toscan.* T. i. P. iii. p. 24. To these may be added, an history of real catalepsy described by Fiorilli, and published in the *Journal Avvisi Sulla Salute Umana*, p. 150. an. 1775. and p. 393. an. 1776. the complete cure of which seems to have been owing to a spontaneous bilious diarrhœa; as also another published in the same Journal, n. 5. 6. an. 1783, which exhibits partly the true and simple catalepsy, partly the spurious and complicated one. An account of catalepsy was published at Halle in 1780, intitled *Tractatus Pathologicus*, by Gotlieb Leberecht Faber, M. D.

CHAPTER VI.

CONCERNING

THE SPHACELUS OF THE BRAIN, MENTIONED
BY HIPPOCRATES;

OR CEPHALITIS.

168. I REMAINED long very doubtful in what part of my work to treat of the *sphacelus* of the brain, whether here, when discussing the comatose affections, or elsewhere, after having spoken of *phrenitis*; but was at length led to adopt the first resolution by the great similitude which subsists betwixt this affection and those already mentioned. No one will deny that it has been very seldom mentioned by medical authors; although it appears formerly to have been in some measure sketched out by Hippocrates * and his followers †, and afterwards was clearly described before our times by Riverius ‡, Petrus Salius ||, and Bonnet §. But now, since Sauvages ¶, Sagar **, Carrer ††, and others, have published their works, it has become so well known, that whoever should pass it over in a work of this kind, would very justly be accused of great ignorance both of pathology and nosology.

* Aph. 50. sect. vii. † *Auct. de Morb.* l. 2. n. 20. &
l. 3. n. 4. and *Coac. Prænot.* l. 2. c. 2. n. 11. ‡ *Prax.*

Med. l. 2. c. xii. || *De Morb. Partic.* c. i. § *Sepulchr.*
Anat. l. 1. sect. 1. obs. 76. to 79. where observations are quoted from Ballonius, Rolfinck, Henricus ab Heers, and Brasavola, and illustrated with remarks. ¶ *Nosol. Method.* cl. 3. ord. 3. gen. 18. ** *Syst. Morb. Symp.* cl. x. ord. 1. gen. xiii. publ. at Vienna 1776. cl. xi. ord. 3. gen. xii. †† *Malad. Inflam.* P. iii. sect. 1. c. 2.

†† Mercurialis, inquiring into what the *morb. solstitialis* is, of which mention is made in the *Trinummus* of Plautus, has the following words: “It is probably not improper to consider as the solstitial disease that one which is named by the Greeks *εὐρίαισις*, by Alexander (1. *Pro.* 98.) *καῦμα κεφαλῆς*, by Pliny *ardor capitis*, by Avicenna *erysipelas*, by Rhazes *sekakilos*, and by Hippocrates *sphacelus cerebri*, which, although it chiefly happens in children, takes place also in adults, generally proving fatal in the space of three days in the summer-time, when, as Alexander writes, it is principally induced.” *Var. Lect.* l. v. c. iii.

169. As far as I have been able to learn, both from the observations of others, and from what I myself have remarked, it shews itself chiefly by the following marks. At first an acute headach comes on, which is chiefly felt in the occiput, but not unfrequently affects one or other ear, and sometimes the crown of the head, stretching along to the vertebræ of the neck, and almost to the whole spine of the back, uniformly attended with a raging fever, which, however much it distresses the patient with heat, overwhelms the senses in such a manner, that he frequently not only loses all desire for drink or food, but even cannot take

it, or any medicine, when offered him. The febrile paroxysms are occasionally aggravated, and then the extremities become cold, but afterwards recover their heat, when the violence of the fever increases.

170. Moreover, the face swells and becomes red; the eyes, which are distended with turgid veins, protuberate, and are almost fixed in the head; the mind remains in a state of torpor, the patient sends forth deep sighs, and occasionally groans; he becomes deaf, or at least dull of hearing; when interrogated he looks at the person, but replies only in monosyllables, or broken words; afterwards he becomes profoundly silent, and almost intirely loses sensation, while merely the motion remains, with which he is generally so much agitated, that, owing to his tossing about, the bed seems scarcely capable of containing him. He likewise sometimes starts up, rolling himself in different directions, sometimes moving his legs and feet, sometimes throwing out his arms, sometimes directing his hands to his head, attempting to tear his hair or beard, and lacerating his face with his nails. When the disease has advanced, and the senses are completely lost, he becomes quiet, languid, and mute, occasionally opening his eyes when roused with a loud voice, but speaking nothing. Nay, at times he pays no attention to what is done to him, and occasionally even when smartly pricked he does not draw

back his limbs, nor complain, remaining like a person in a state of apoplexy, and being generally in a very short time cut off during the continuance of these very fatal symptoms. In children I have frequently observed a hemiplegia, or convulsive motions in some part, particularly about the face, precede death.

THE PROGNOSIS.

171. THIS fatal termination is of such frequent occurrence, that notwithstanding of immediately having recourse to the aid of medicine, scarcely any patient escapes. In general the patient's death happens in three or four days: his life being very seldom prolonged beyond those boundaries. Sometimes, however, he survives to the seventh * or fourteenth † day, when he at length sinks under the complaint, which evidently points out the falsehood of the remark of Hippocrates, namely, "That those whose brain becomes sphacelated die in three days, which, if they survive, they recover ‡." For experience has frequently shewn, that their life is by no means secure even after the third day has elapsed. If any hope remains, it intirely depends on a copious epistaxis taking place, which, according to Carrer, promises well ||; while the blood trickling

from the nostrils by drops affords a fatal symptom.

* *Coac. Prænot.* l. i.

† *Amat. Lusitan.* cent. i. cur. 9.

‡ *Aphor.* 50. sect. vii.

|| *L. c.*

172. Almost all of those who recover, according to Riverius, remain unconscious of what has passed. Dissection of the dead bodies discovers corruption, sphacelus, or suppuration and abscess, sometimes in the cortical, sometimes in the medullary substance of the brain, or cerebellum. It is not surprising, therefore, that in some cases, a little before death, or after it, in consequence of the corrosion and rupture of the surrounding parts, pus bursts forth from the nostrils, mouth, or ears. On opening the body of a girl of six years of age, who had died in consequence of sphacelus of the brain within five days, the dura mater was found adhering so firmly to the cranium, that it could not be separated without much difficulty. Its vessels, on removing the cranium, appeared very much distended with blood. The pia mater was found somewhat harder than usual, inasmuch that it was with difficulty that it could be divided. On removing the membranes, the upper part of the cortical substance of the lobes of the brain, which was completely putrid and corrupted, was found to be of a leaden colour, without any mark of effusion. The medullary substance, as far as could be discovered, was un-

injured. It is probable, however, that in consequence of the inflammation and turgescence of the cortical part of the brain, that the medullary part also suffered compression. Nothing unnatural was discovered in the ventricles or cerebellum, excepting a little serum, which being effused under the latter, extended from it to the medulla oblongata and beginning of the spinal marrow, and was probably the real cause of the opisthotonus which supervened laterally *.

* I myself saw this patient. The dissection was performed by my former pupil, Vidomari, who is at present one of the physicians in ordinary to the great Hospital at Vienna, by whom also the history of the disease is drawn up, and all the symptoms of it, from which the diagnosis may be best collected, enumerated with such accuracy, that I hope it will not be considered as superfluous to insert the account here. “A girl of six years of age, whose fluids were rather bad conditioned, who was pale faced, and not free from an acid acrimony,—as was indicated by the deficient redness of the face, lips, mouth, gums, and fauces, slight thirst, voracious appetite, very rapid digestion, the acid smell of the fæces and sweat, and, lastly, by the softness and laxness of her habit;—in the month of June, an. 1779, was attacked with confluent small-pox, which then prevailed epidemically. On their drying, a secondary fever, which was aggravated like a quotidian, continued, for the removal of which, cathartics, a considerable quantity of whey, peruvian bark, and other antiseptics were given. At length red, painful, small tumours broke out in various parts of the body, of which some were resolved, while others suppurated, and when lanced discharged laudable pus. The fever being thus overcome, and the abscesses allowed to run a sufficient length of time, and at length a cicatrix being formed

on them, she was carried to the country to enjoy the pure air, and, by the continued employment of tonics and antiseptics, recover her former strength and health. In the autumn she returned to town in tolerable good health. During the winter-season, which proved remarkably variable and inconstant, she was frequently distressed with coryza and a rheumatic cough, occasioning considerable uneasiness. In the beginning of the spring, which is subject to sudden vicissitudes of weather, she did not sufficiently guard against the effects of the sun's heat, the cold air, both at night and during the day, and the winds and other inclemencies, which proved the more pernicious, the more the room, from which she used to pass to the cold air, had been heated.

“ But on the 17th day of May 1780, towards evening she suddenly complained of an acute pain in the head, extending from the top of the head to the ears, chiefly, however, to the right one, which likewise appeared to be affected externally. This pain was succeeded by fever, conjoined with bilious vomiting. The night was spent without rest.

“ On the 18th the pain continued the same; the urine was white, thin, and crude; the pulse quick, hard, and intermitting; she spoke little; and was generally delirious. She was purged by means of a gentle cathartic; in consequence of which she had a slight passage. About noon she became somewhat cold, and was seized with pain over her whole body; afterwards a very violent fever succeeded, attended with stupor of all the senses. She rejected every thing offered to her, except water with the syrup of citron-juice, which she drunk with the greatest avidity.

“ In the evening blood was drawn first from the arm, and it was covered with the buffy coat. Immediately after the bleeding, a blister of cantharides was applied behind each ear. Still the symptoms did not remit. Nay, next night the face swelled, but did not become red: the eyes remained almost fixed and immovable, the respiration was occasionally interrupted with sighs, she occasionally groaned, and appeared mute and stupid.

“ On the 19th blood was again let, by means of leeches applied to the temples. A large blister was clapped on the crown of the head ; and epispastics to the legs and soles of the feet. After noon the extremities became cold ; but, on the fever returning in the evening with extreme violence, they again became warm. On being interrogated she paid attention, but did not return any answer, at the same time continuing to mutter complaints to herself in a low voice. She sometimes started out of bed, throwing herself into different postures, at one time moving her legs, at another her arms ; sometimes also she attempted to tear her hair, and disfigure her face with her nails. At night the leeches were again applied, but to the nostrils.

“ On the 20th the same symptoms continued. The clysters, which were thrown in with a view of nourishing her, were with difficulty retained. After mid-day the extremities turned cold, while the head became warmer, the pulse frequent, quick, weak, irregular, and intermitting, the respiration difficult, and attended with snoring and coma somnolentum. As the night advanced, the fever was aggravated with the greatest heat. Afterwards the feet were fomented with warm water, and linen rags dipped in wine and water, and wrung, were applied to the forehead.

“ On the 21st the same symptoms, but still more violent, continued. She appeared every moment on the point of death. About noon a spontaneous looseness took place, in consequence of which she was relieved to all appearance ; and seemed to have been saved from the jaws of death. At night an opisthotonus coming on, all the symptoms were aggravated.

“ On the 22d day no change having taken place, and her strength sinking fast, she expired after mid-day.” I have already mentioned the appearances on dissection.

173. It appears from the careful description of the disease, hitherto delivered, that it is a sudden

and acute pain of the head, sometimes universal, sometimes of particular parts, especially of the occiput, or crown of the head, accompanied with a continued violent fever, first attended with stupor of the senses and mental faculty, and afterwards with the complete loss of these, the irregular motion of the body, and agitation of the hands, which is named *carphologia*, in the mean time remaining, and in a few days generally ending in a fatal carus or apoplexy.

174. It appears, moreover, that its proximate cause is of a very pernicious kind, quickly injuring the brain, and wholly destroying its functions. On the whole, it is supposed to be an inflammation of the brain, taken in its full extent, of such a nature as to quickly destroy its very delicate structure, and convert it into a state of putrefaction. Most of the moderns, therefore, have named it *cephalitis*, and the ancients *sphacelus*, *sideratio*, and *abscess*, of the brain, the former deriving the name from the cause, the latter from the effects which follow it. For it can by no means be conceived, that Hippocrates supposed that actual sphacelus and putrefaction of the brain took place in the disease at the beginning, as he both knew and affirmed that some patients recovered from the complaint. But who, in the case of the brain's having become putrid and really sphacelated, could possibly recover? The words of Hippocrates, therefore, as Galen*, Duret†,

and others of his interpreters have remarked, must be received with limitation.

* Aph. § 1. sect. vii. & l. 2. *De Loc. Affect.* ‡ *L. Cit. et Ballonius Definit. Med.*

175. But there are many probable arguments for believing, that not only the brain and its more intimate parts, but also the cerebellum, medulla oblongata, and medulla spinalis, are more or less affected with this inflammation. For, in order that the senses should first become stupid and deranged, and afterwards completely destroyed, the *sensorium commune* must necessarily be oppressed by it: while the cerebellum, medulla oblongata and spinalis, from whence the præcordia and muscles of the joints chiefly derive their nerves, must be so irritated as to give rise to anxiety, restlessness, tossing of the limbs, and irregular motions, until they cease in consequence of perfect insensibility, or anæsthesia, coming on.

176. Among the remote causes are ranked, abundance of too acrid and bilious blood, heat of the same, and too great a determination of it to the head, insolation, warm and moist states of the air, an epidemic acrid, putrid fevers, contusions, wounds, and other external injuries, in consequence of which, not only is inflammation in general occasioned, but particularly that species of phrenitis which is named *inflammatory* (189.).

177. I do not, however, wish it to be supposed, that sphacelus of the brain, and inflammatory phrenitis, are one and the same affection, although their causes may be common. For there is no slight distinction between the nature and phenomena of each: phrenitis, from whatever cause it arises, being an acute and constant delirium, and, when it depends on inflammation, generally a violent and furious one, accompanied with constant watching. On the other hand, sphacelus, as I have already said, is an acute pain of the head, which comes on suddenly, attended with stupor and diminution of the sensibility. Perhaps also the nature of the part affected occasions a difference between them. It appears probable, that in phrenitis the more external parts, and in sphacelus the more internal parts, of the brain and cerebellum are affected. But in what manner the one differs from the other will be more properly the subject of investigation when the history of phrenitis shall be delivered (184. to 190.). I shall now point out the difference which subsists between it and apoplexy, epilepsy, and the other comatose affections. In apoplexy, at the very beginning, the patient is deprived of both sense and motion, and if the disease be pure no fever is present; on the other hand, in sphacelus there is both present a constant acute fever, and it is only towards the end that the sense and motion are intirely ex-

tinguished. For nearly the same reason sphacelus differs from epilepsy, in which, although the power of moving remains, the motions which take place are violent, irregular, involuntary, and performed without the patient's being conscious of them. In sphacelus the mind seems to be capable of pursuing its will, and to be directed to certain actions, and lastly, the patient does not foam at the mouth. Moreover, a continual fever attends it, contrary to what happens in epilepsy. Besides, persons affected with carus and lethargy are overwhelmed with profound sleep, and lie almost immoveable, unless they are roused by external violence; and they are either without fever, if they labour under the primary disease, or the fever has preceded the coma, as the primary disease and cause, or supervenes upon it, but does not, as in sphacelus, arise at the same time.

THE CURE.

178. THIS is a disease, of all others, requiring those remedies which most quickly remove inflammation, lest the corruption, gangrene, supuration, or abscess of the brain and cerebellum, occasion death. It therefore becomes necessary, at the very beginning of the disease, as I have already repeatedly inculcated (24. 123. to 125.), to draw blood copiously both from the veins and

arteries. But if neither repeated bleeding from the veins, nor arteriotomy, prove of any service, we ought to promote a discharge of blood from the nose; for it is affirmed that the disease has been sometimes spontaneously resolved in this manner. Of those remedies which are usually employed to draw forth blood from the nose, Petrus Salius Diverfus * selects leeches as being the most efficacious, advising the application of them to the inner part of the nose, that by their repeated application, and sponges dipt in warm water, and applied to the head, the blood may be made to flow copiously. For he affirms that in this way he has recovered several patients.

* L. c.

179. Revulsion is likewise very efficaciously occasioned from the head, both by dry and bloody cupping-glasses, which ought to be applied in great numbers, and fixed deep; by friction also, and painful binding of the extremities, which likewise ought to be fomented with warm water; and, lastly, by blisters of cantharides, which may be applied to the shoulders and scapulæ, so as to produce ulceration. It is of consequence in the mean time to purge the belly gently, but sufficiently, to use emollient remedies for the abdomen, both externally and internally, and to apply to the head those things which prove both repressing, refrigerant, and resolving.

When the brain has been relieved, sternutatories are proposed by some: but it appears to be a safer plan to refresh the patient with agreeable perfumes, and mild and delicate-smelling spirits, than to shake or irritate the brain by means of acrid stimuli.

180. It seldom happens that meat can be given before the fourth day; for during the three first the patients either take no food, or we are deprived of any opportunity of giving them nourishment, on account of the rapid tendency of the disease to death, which often happens in that time. In the mean time they ought to be forced to drink a great deal of water with oxymel and nitre, by which both the resolution of the inflammation, and the supporting of the patient's strength, are sufficiently promoted. But after three days have elapsed, if the disease is to end favourably, they begin to be somewhat relieved, and to recover the use of their senses; and they may then be fed, but with light food, and at intervals. Afterwards, however, they may be allowed both wine, but in small quantity, and diluted with water, and somewhat more generous diet.

CHAPTER VII.

OF

DELIRIUM, AND ITS VARIOUS KINDS.

181. EVERY aberration of the imagination and mental faculty in general, is named by the Greeks *paraphrosyne*, *paracope*, *paraphronesis*, and by the Latins *delirium*, *insania*, or *desipientia*. Almost the same thing happens to people in a state of delirium which happens to those who dream during sleep, insomuch that dreams may not improperly be named the *deliria* of people asleep, and deliria may be considered as the dreams of people awake.

* Fernel. *Patholog.* l. v. c. 2. et *Lexic. Med.* Castello-Brunon. v. *Delirium*.

182. There are various kinds of deliria; nor is their nature the same. But I shall here confine myself to explain only the chief of them, namely, *phrenitis*, *paraphrenitis*, *mania*, and *melancholia*, in which sometimes the imagination, sometimes the judgement, and sometimes both, are deranged,—because all the other species may be conveniently referred to these four,—making a few observations towards the end on fatuity,

although this last scarcely ever falls under the care of the physician.

183. To begin with the first species ; I may remark, that *phrenitis*, or *phrenetiasis*, is derived from the word *phrenes*, signifying the diaphragm, or *præcordia*, because the most ancient physicians placed the seat of the mind and wisdom in these parts *. Hence all persons labouring under mental derangement, as it was supposed that their affection depended on a faulty condition of the *præcordia*, were formerly called phrenitic : from which opinion Hippocrates himself does not seem to have differed much, as, in enumerating the symptoms of phrenitis, both in his third book *De morbis* †, and in that which is intitled *De affectionibus* ‡, (although it is ascribed by Galen to his pupil Polybus), he makes particular mention of the pain distressing the *præcordia* and *septum transversum*.

* Auctor. *de Morb. Sacr.* N. 18. *et de Virgin. Morb.* n. 2.

† N. 9. ‡ N. 10. and 12. *ed Marinell.*

184. But afterwards, as Vogel very properly remarks *, both Hippocrates and Celsus, who has translated a great many parts of his works into Latin †, gave the name of phrenitis to that species of insanity “ which is both acute, and continued, and accompanied with fever.” But there were many varieties of this last in their works ; since, according to Celsus †, “ of phrenitic patients, some are chearful, and others sad ;

some are restrained more easily, and confine their madness to words; others rise up, committing acts of violence, and of these some do so by open force, while others employ artifices, in the execution of which they exhibit the greatest cunning, but are detected in the end."

* *Prælect. de Cogn. et Cur. Morb.* § 57. in note *). * *De Med.* l. iii. c. 18. † *Ibid.*

185. But by degrees this doctrine was somewhat modified, and that name was given not only to the acute and continued delirium, conjoined with fever, but to that one in particular which was violent and furious*; on account, if I mistake not, of their supposing that the inflammation of the membranes and brain, which they had long considered as the proximate cause of phrenitis†, could not give rise to any thing but a violent and raging madness‡.

* Boerhaav. *De Cogn. et Curand. Morb.* § 771. Ludwig. *Instit. Med. Clinic.* P. i. c. ii. sect. i. § 288. Quarin. *Method. Medend. Febr.* c. ii. *de Phrenitid.* p. 19. † Vid. Galen. *in Prædiction.* l. i. text 38. River. *Prax. Med.* l. i. c. xi. *De Phrenitid.* Nic. Piso *De Morb. Cogn. et Curand.* l. i. c. x. Fernel. *Patholog.* l. v. c. ii. Lomm. *Medic. Observ.* l. ii. p. 66. et alii bene multi.

‡ Those who have affirmed that phrenitis is an inflammation of the membranes of the brain, and therefore that it is to be distinguished from inflammation of the brain itself, have probably founded this opinion on the belief that these membranes possess exquisite sensibility, and the brain none at all. The chief of those who entertain this opinion, are Baglivi, Hoffman,

Bellini, and, lastly, Sauvages, who has therefore bestowed the peculiar name of *cephalitis* on inflammation of the brain, in order to distinguish it from *phrenitis*, or inflammation of the membranes. But they seem to have gone upon an erroneous opinion; for it has been demonstrated by the experiments and clinical observations of the followers of Haller, that the very opposite is the case, namely, that the membranes are without feeling, and not the brain. Besides, it is perfectly well known, that in phrenitis itself, when it depends on inflammation, not only the membranes are inflamed, but very frequently the brain also. Nor can it happen otherwise, as they are so nearly connected together. Nor must I omit to mention, that sometimes phrenitis, that is to say, furious delirium accompanied with fever, has been observed without the membranes being in the least affected, as has appeared from dissection. See Carrer's *Treatise De Malad. Inflam.* P. iii. sect. i. c. 1. 2.

186. But Galen, in his commentary upon these words of Hippocrates, "That obscure mental derangement, accompanied with trembling, in which the patients are constantly handling imaginary objects, is highly phrenitic *," has accused those persons of error, who were of opinion that nobody is in a state of phrenitis, unless he starts out of bed furious, vociferating, and committing acts of violence. But Celsus, before Galen, as I have already shewn (184.), has made mention of such emotions of mind in phrenitic patients being accompanied with silence. In our own times, Van Swieten in particular has remarked the same thing, having not only enumerated such cases from the works of Hippocrates †, but also mentioning such as he himself had seen;

and by all of them he confirms the opinion of Galen, which he quotes ‡.

* *Prædict.* l. i. text *citat.* † *Coac.* n. 68. ‡ *Comment.* in Boerhaav. *aphorism.* § 770. & 771.

187. Moreover, a circumstance which militates against those who derive phrenitis from the inflammation of the membranes of the brain, is, that it has frequently appeared from the anatomical observations of Willis, Morgagni, Carrer, and other accurate anatomists, that not only the membranes of the brain, but also the brain itself*, have appeared inflamed, without any delirium at all, far less a violent and raging one following †. This is frequently very manifest, particularly in sphacelus of the brain (168.). Nay, the same authors have demonstrated to a certainty, that the comatose affections are very frequently conjoined with inflammation of the membranes and brain, and therefore that slight and silent mental derangement is rather accompanied with it than furious and raging delirium.

* Carrer, l. c. P. iii. sect. 1. c. i. p. 312. † Bonet. *Sepulchret. Anatom.* l. i. sect. viii. obs. 1. 13. 16. et Morgagn. l. c. epist. vii. n. 2. 6. 9. 11. 13. 15.

188. Lastly, although on dissecting the bodies of those who have died of phrenitis, violent inflammations *, suppurations, putrefaction, or abscess of these parts (187.), have been sometimes discovered †, rendering it undeniable that phrenitis originates from that cause; still furious,

continued delirium, accompanied with acute fever, such as the phrenitic one is supposed to be, has frequently proceeded from very different causes, as dissection has shewn; so that no doubt can any longer remain on the subject. For at one time merely a gelatinous or mucous matter, namely, coagulated lymph contained in the interstices of the vessels of the pia mater, and a portion of effused serum has been discovered †; at another time, a small quantity of serum under the membranes, and white, hard, small polypous concretions in each of the sinuses of the dura mater ||; or mucous or reddish serum effused between the membranes or within the ventricles §; at other times, considerable hydatids in the choroid plexus ¶; and not unfrequently a good many conspicuous vessels in the medulla of the brain itself, but none in its cortical part; sometimes likewise tumours, fungous excrescences, hard pustules on the surface of the meninx, bony concretions in it, and, lastly, great dryness of the membranes and brain **.

* Morg. Ep. Cit. n. 13. and elsewhere; where also the small vessels in the membranes and brain are said to have been found turgid with blood. † *Id. ib.* n. 2. Bonet. l. c. obs. 3. 4. 5. 7. etc. Eller. *Observ. de Cogn. et Curand. Morb.* sect. viii. p. 128. Lieutaud. *Precis. de Medec. Malad. Intern. de la Tête*, l. i. p. 209. Lanzoni, Eph. N. C. Dec. 3. an. 9. obs. 113. Moegling. *ib.* cent. vi. obs. 22. Tissot. *Avis au Peupl.* c. x. p. 183. 184. Morgagn. l. c. Ep. vii. n. 7. 13. et alibi. ‡ Morgagn. *ib.* n. 4. || *Id. ib.* n. 11. 13. § *Id. ib.* ¶ *Id. ib.* ** Lieutaud. l. c.

189. Here, I think, it appears that in some people phrenitis takes place from inflammation of the brain only, in others from that of the membranes, or both, or at any rate from a certain degree of distention of the blood-vessels *, which, however, is not such as to press greatly on the brain, but merely to irritate it, and throw it into commotion; that in others, again, it arises from effused lymph, or serum, of an acrid, corroding, or salt kind, or from mucous phlegm exuding into the cellular membrane, or from polypous concretions obstructing the venous sinuses, and retarding the return of the fluids, or from the other causes already mentioned (188.), or from several of them conjoined †.

* It will justly appear a matter of surprise, that from the very same cause, namely, inflammation of the membranes of the brain, and the brain itself, that sometimes sphacelus (175.), sometimes comatose affections (111.), sometimes furious delirium, sometimes that which is mild and silent, or both species of phrenitis (185. 186.), diseases of so different a nature, and sometimes also that no delirium, should arise. If the cause is inquired into, I should consider it as very probable that it consists in the various degrees of the inflammation, and its various manner of acting and force. For when, from inflammation, the medulla of the brain, which is said to be the seat of our ideas, is either proximately or remotely irritated and agitated, more than when it is compressed, and when that takes place without any remission or intermission, a furious and constant delirium, or, according to the moderns, phrenitis, necessarily arises. On the other hand, if the irritation affects it irregularly, and less uniformly, phrenitis then arises; but it is of the spurious kind, namely, that kind of delirium which is neither constant nor furious, but interrupted

and placid. If it is not propagated to the medulla, however, no delirium succeeds. But if the violence of the inflammation is such as to press upon the medullary part of the brain, and to overwhelm the internal senses, then the comatose affections arise. Again, when the cerebellum, medulla oblongata, and spinal marrow, are particularly irritated, while the internal parts of the brain are rather compressed, and when there is a tendency in the blood to putrefaction and sphacelus; anxiety, restlessness, and tossing, together with stupor of the senses, aphonia, and the like, which I have already said take place in sphacelus, are apt to be associated with the complaint.

† Stoll also supposes that there are various causes of phrenitis, and he proves this by different dissections. *Vid. Rat. Med. in Nosoc. Pract. Vindob. P. iii. sect. 3. Dissert. de Causs. et sed. Phrenit. p. 175.*

190. As the causes, therefore, of phrenitic delirium appear to be so various, according to the different degrees of congestion of the blood and other fluids, and their nature and motion being altered, and according to the various parts of the brain which are affected, or the morbid condition of it and its membranes; it necessarily follows that we cannot consider inflammation of the brain or membranes alone as the cause of phrenitis. But the force and action of all of them, of whatever nature they be, tend, either by retarding or interrupting the motion of the blood; or by obstructing, filling, irritating, and distracting the vessels of the brain and membranes, to produce such an intimate derangement of the brain, that irregular, and more or less violent, motions in its medullary

fibres—in consequence of which the force of the appended nerves is increased—arise, and certain unnatural combinations of ideas, subverting the mental faculty and judgment, take place ; which motions, if they increase to a violent degree, occasion convulsions of the whole body.

191. Phrenitis, therefore, may be viewed in a double light, either with respect to its causes, or its particular symptoms. But its causes are generally so obscure, uncertain, and manifold, that it is no easy matter, from the consideration of them, to arrive at any certain knowledge of its nature. Hence I consider it as more judicious, —which ought to be recollected with regard to other diseases also,—to describe it by the peculiar affections with which it is attended, and which are obvious to the senses, without making mention of any cause which may be considered as doubtful or fictitious. I should therefore define phrenitis to be *a continued, universal, and generally furious delirium, accompanied with an acute fever* *.

* A similar definition was adopted by Carrer and Van Swieten. Admitting this definition, which appears more consistent with nature, it remains that those definitions, according to which *phrenitis is a violent and furious delirium, arising from inflammation of the membranes and brain*, and other similar ones, must fall to the ground. Nor will that definition probably appear to rest on a firm foundation, which Vogel has given, who calls phrenitis that kind of malignant fever in which constant madness is observed. For in this way we exclude the

phrenitis occasioned by simple inflammation of the membranes and brain, and other causes which by no means partake of malignity, and which indisputable observations, as I have already said, have shewn to be possible to exist.

192. A predisposition is in some measure created to this disease by youth ; the sanguine or choleric temperament ; a very warm climate or season ; fermented liquors and ardent spirits ; long-continued watching ; violent affections of the mind ; intense cares and studies ; acrid food and medicines ; retention of a hemorrhage from the nose, or of any other usual excretion ; an inflammatory diathesis ; a serous colluvies ; an inert, sluggish, and acrid humour ; a putrid and bilious condition of the chyle ; a scorbutic dyscrasy ; a putrid dissolution of the blood, and its penetrating deeply into the intimate parts of the brain ; the metastasis of angina, pleurisy, peripneumony, small-pox, measles, the miliary or petechial eruptions, arthritis, gout, erysipelas, the lochia and the milk in puerperal women,—especially those who do not give suck ;—of scabies, and other diseases proceeding from acrid lymph ; an epidemic miasma ; an acute, violent, ardent, petechial, miliary, and slow nervous, and pernicious fever of any kind ; rending headaches ; the application of too cold or too warm things to the head ; blows, contusions, wounds, and fractures of the cranium ; and, lastly, poisonous bites, and parti-

cular poisons, as belladonna, or solanum furiosum, hyoscyamus, stramonium, cicuta aquatica, and the like.

193. To these (192.) some authors, but in particular Tissot *, add, as being a very frequent evident cause of phrenitis, incautious exposure to the sun, especially during the spring and summer season. For, in consequence of the head being long exposed to the sun's rays, the vessels are first dilated, the blood becomes thinner and effervesces, passing into spaces not designed for it, the igneous principle is thrown into commotion, probably the air contained within it is extricated, and acquires an elastic form, after which the finer parts are exhaled and dissipated, and the remaining parts condensed, rendered dry and acrid, in consequence of which great heat, tension, and irritation in the vessels take place. In a word, all those things take place which are considered as being very apt to force the blood with greater violence into the brain, and to induce an inflammatory congestion.

* *Avis au Peupl. T. i. c. x. De Coup de Soleil.*

194. Phrenitis is commonly divided into *primary* and *secondary*. That species is reckoned *primary* in which the brain is primarily affected, the fever coming on at the same time with it, or a little after. That one, again, is named *secondary*, in which the brain is affected to be sure, not primarily however, and from the beginning

of the complaint, but secondarily, or during the progress of the complaint, as when it supervenes on other acute diseases, or fevers. The fever in the latter has been either already present as a primary disease, or is conjoined with it, although arising from another cause, or accompanies it as a symptom. It is sometimes named *symptomatic phrenitis*, namely, when it is a symptom of another disease still present, as of an acute, malignant, or epidemic fever, pleurisy, peripneumony, small-pox, measles, the *iliac passion*, &c. I do not wish, however, that the secondary and symptomatic species of the complaint, in which we suppose the brain to be idiopathically affected, should be confounded with that kind of delirium, which is excited by a cause existing elsewhere, and deranging the brain merely sympathetically, and which, on the cause being removed, immediately ceases ; for it seems rather to belong to *paraphrenitis*, as I shall hereafter shew. Again, the *primary* species is generally considered as the same with actual phrenitis : and the *secondary* the same as the *symptomatic* species. But, in the opinion of others, that species is considered as the *real phrenitis*, which is occasioned by inflammation of the membranes and brain ; and that one as *spurious* which is occasioned by other causes, but such as are inherent in the brain and its membranes. But it still may be inquired, whe-

ther or not real phrenitis has been sometimes induced by other causes besides inflammation?

* Not a few of the cases of phrenitis described by Stoll more properly come under the head of Paraphrenitis.

195. In this variety of opinion, therefore, in order to avoid all dispute, it will perhaps be better to name that species *genuine phrenitis*, in which perpetual and furious delirium, accompanied with speaking and acute fever, occurs; and that one *spurious*, in which the delirium is neither so continued nor furious, being tranquil and silent, and the fever not so violent. Both species of the complaint, whether genuine or spurious, primary or secondary, may be conveniently distinguished, with a view to the cause of the complaint, into *sanguineous*, *serous*, *mixed*, *metastatic*, *purulent*, &c. Again, it is better to subdivide the *sanguineous* species into *phlegmonic* and *erysipelalous*. Nor is it improper to divide the *serous* species into two kinds, the one occasioned by a viscid, thick, and mucous fluid, obstructing the vessels of the brain and membranes in different parts; the other proceeding from thin lymph, which proves hurtful more from its acrimony than thickness, infected with foreign and noxious matters, and irritating the brain and membranes. And it appears that almost all the causes of phrenitis may be conveniently referred to these differences. The physician, there-

fore, ought to pay attention to them, if he be desirous of assisting his patients according to the precepts of rational medicine.

196. It is proper to observe also, that phrenitis differs from that delirium which accompanies the more violent paroxysms of intermitting fevers, and which only increases and becomes manifest when the fever is aggravated, remitting and ceasing on the latter taking a turn. This species of delirium is named by some, *delirium febrile*, by others, as Lommius, *paraphrenesis*, and by a third set, among whom is Carrer, *paraphrosyne*. For it differs from phrenitis on account of having an intermission and returning at intervals; while, on the other hand, in phrenitis, we have seen that there is present a constant and uninterrupted state of fatuity. It will shortly appear in what manner we are to distinguish phrenitis from paraphrenitis, mania, melancholia, and other states of mental derangement.

THE DIAGNOSIS.

197. THE sanguineous species of phrenitis (196.), is preceded by constant watching, acute headach, and great heat, together with unusual irascibility, nay, sometimes by actual madness. To these symptoms are added, an acute and violent fever; very troublesome pulsation of the arteries over the whole

head, particularly of the temporal ones ; unusual rolling of the eyes ; redness and swelling of them and of the whole face, accompanied with a wildness of expression ; sudden or gradual derangement of the mind, beginning particularly during sleep, afterwards succeeded by constant mental disorder, which is at one time accompanied with violence and fury, at other times not ; a tendency to forget every thing, even those things which have just past ; a frequent and quick pulse, often at the beginning contracted, afterwards small and irregular, and as tense as a cord ; great and slow, or irregular respiration ; dryness and roughness of the mouth and tongue ; generally no sense of thirst, although the tongue and fauces be very dry ; scanty and deep coloured urine, sometimes thin and watery, sometimes turbid ; no sleep, or, if any be present, that which is interrupted with alarming appearances and terrifying dreams.

198. The causes also which have given rise to the complaint throw a great deal of light on its nature. We must therefore inquire, whether they were such as are supposed to be capable of occasioning an accumulation of blood, and exciting inflammation ; whether the sanguine temperament, the patient's age, habit of body, and manner of living, correspond with them ; whether discharges of blood have been deficient, or the metastasis of any inflammation has taken

place ; for the proper investigation of these points will render our judgment concerning the presence of the sanguineous or inflammatory phrenitis much more probable. If, at the same time, a comatose affection, or rather coma vigil, concur, if the face and neck swell, and if the blood which is drawn be thick, and covered with a tenacious buffy coat, the presence of phlegmonic phrenitis is indicated. But if watching rather than sleep, and instead of silence rage, and a lancinating pain of the head rather than a throbbing one, together with a yellowish colour of the skin rather than a red one, be present ; if the blood which is drawn be thin, florid, and surrounded with yellow serum ; if the temperament be choleric ; if it be the summer-season ; and if bilious, ardent, and putrid fevers be stationary ; we may infer that the *erysipelatous phrenitis* is present.

199. Symptoms similar to those already mentioned (197.), but generally less violent in degree, take place when the phrenitis is secondary, and the symptom of another disease. They are much milder if it be rather the ferous species, which will appear particularly from the phlegmatic temperament ; from the patient's infancy or old age ; from his using a fluid diet ; from the marshiness of the situation, and the indolence of the patient's life ; from the paleness of the face, softness of the pulse, smallness of the heat on the

forehead ; from inconsiderable pulsation of the temporal arteries ; from there being less dryness of the tongue and fauces ; and from other marks already enumerated (102.). A sense of weight rather than of acute pain, and there being greater drowsiness, indicate lentor of the serum and lymph ; while the perception of pricking, and the patient's remaining awake, denote acrimony and tenuity of them ; to say nothing of the preceding symptoms, from which the greatest light may be obtained. That the complaint is a mixture of both causes, namely, of the sanguineous and serous, will appear from the marks peculiar to both being united : and it will be found that it is of the *metastatic* or *purulent* species alone from the retrospect of the preceding circumstances. A person may be enabled to form a conjecture with respect to its less frequent and more hidden causes (188. 189.), from the careful examination of the first origin of the complaint, and the peculiar and unusual combination of symptoms. This, however, is a matter attended with much difficulty, and requires a physician of the greatest skill and perspicacity.

200. It is in common to every species of phrenitis for the patient to speak a great deal of incoherent nonsense, to laugh, intreat, to get into a passion, to leap up, and attempt escaping ; and afterwards, as the disease increases in violence, to be seized with tremors of the hands, to

gather the bed-cloaths, to grasp the curtains, to catch at imaginary objects floating in the air, to fold together the bed-covering, to grind the teeth, and, lastly, to fall into *coma*, or *carus*, with the greatest loss of strength and weakness of the pulse, or to be seized with convulsions, death in a short time after closing the scene.

THE PROGNOSIS.

201. THIS kind of mental derangement is by far the most acute, as it generally proves fatal in a very short period. We are informed by Prosper Alpinus, that in Egypt patients are frequently cut off within a few hours after the attack*. For he mentions having seen several patients labouring under phrenitis, who expired in three or four hours; contrary to what Galen had an opportunity of observing†. In general, however, the complaint proves fatal in three, four, or seven days. The near approach of death is announced by constant madness and watching; by the obstinate retention of the stools and urine, or by the latter, from being deep-coloured, becoming pale, or, from being thick, its suddenly growing thin; by difficulty or incapability of swallowing without any discernible injury of the inside of the fauces; or by pain of the throat or neck, without swelling; by difficulty of extending the legs; and, lastly, by syncope, or convulsions.

* *Med. Ægypt.* l. i. c. 13. p. 23.
dem.

† In l. 3. *epi-*

202. It is also a dangerous symptom when a cold sweat comes on, when the extremities become cold, and do not recover their heat, or when the delirium passes into lethargy or coma without any good reason. For it is a proof of gangrene, abscess, or infarction, having arrived at their height. This will more certainly be manifested by the circumstance of the fever remitting, by greenish stuff being thrown off the stomach, by the face becoming pale, by the pulse being languid and irregular, and by some degree of tranquillity of mind returning for a little, as sometimes happens a short time before death.

203. It is also a bad sign when a trickling of blood from the nose takes place, and when the urine is watery and thin, or, after some symptoms of concoction, when it passes into that which is crude and percolated, or exhibits a black cloud floating in it: the one symptom denoting a metastasis of the morbid matter to the head, the other putrefaction, and, as it were, necrosis of the fluids. None, or very little hope is left, in the phrenitis arising from a metastasis, or in that which comes on when the strength is already exhausted by long continuance of the disease. Hence, perhaps, Platner supposed that that species is more to be dreaded which gradually in-

creases, than that which comes on suddenly ; although both of them to me appear to be attended with great danger. In general the delirium which is accompanied with laughter is supposed to be less dangerous than that in which grief, anxiety, silence, or fear occur.

204. But when the disease proceeds more mildly, and recourse is quickly had to medical aid, it is not unfrequently resolved by an epistaxis, or by an universal warm sweat, or by a diarrhœa, or by the hemorrhoidal or menstrual discharge, or by varices in the legs, or by some other evacuation, the utility of which appears from the mitigation of the symptoms, and the successive restoration of all the functions. A discharge of pus has been observed to take place from the ears, or other parts, with relief ; but this is of very rare occurrence. It is also a good sign when a great discharge of water takes place from the mouth or nostrils, or when, upon the critical days, and at the same time symptoms of concoction appearing, deafness comes on, or when the chest or limbs are attacked with pains, from which the head receives relief ; as it is a proof that the complaint is transferred from the internal to the external parts of the head.

205. When the fever is overcome, it sometimes happens that the delirium is still prolonged ; nay, it occasionally passes into *mania*, or *amaurosis*, namely, as some explain it, when the vessels of

the brain, being dilated and turgid after the fever has ceased, cannot relieve themselves from the obstructing matter, and, as it were, grow together, thus interrupting the circulation of the blood and other fluids; or when the morbid matter is transferred from the internal parts of the brain to the optic nerves, and those of hearing; or, lastly, when (as is also probable) the intimate medullary texture of the brain has been so much injured, that it cannot any longer be restored to its former healthy condition throughout. Van Swieten mentions, that perpetual *mania* and *fatuity* are very frequently the sequel of the phrenitis with which puerperal women are affected in consequence of retention of the lochia*. I myself, when a young man, had an opportunity of observing an instance of mental imbecillity, which arose from this cause, in a beautiful woman, in good health, and of an excellent habit of body, who had become phrenitic in consequence of the sudden suppression of the lochia proceeding from the horror of beholding the corpse of her child, which was imprudently shewn to her.

* *Comment. in Boerhaav.* § 774. p. 149. in some editions.

THE CURE.

206. IN treating the *phlegmonic phrenitis* (195. 198.), particularly the primary one, all those remedies are proper which are employed

for other inflammations, especially very copious bleeding from the veins of the arm, foot, neck, and forehead. The temporal artery itself may be occasionally opened, which is frequently attended with the highest benefit *. Likewise the hemorrhoidal veins ought to be occasionally made to bleed, by the application of leeches : for it has been ascertained by many, particularly by Van Swieten, that this discharge seldom fails, and that frequently the delirium is allayed by the evacuation of blood that takes place from them †. Likewise a discharge of blood from the nose, either by means of leeches, or by introducing a pen into the nostrils, or occasioned in any other way, has been found to prove of the greatest service. Nay, they are sometimes applied behind the ears with great advantage, and are so highly prized by Casimir Medicus, that in the cure of the secondary phrenitis which supervenes upon acute diseases, he considers no evacuation of blood as preferable to that which is occasioned by the application of leeches behind the ears ‡.

* Sims, for the cure of phrenitis, relies more upon a pound of blood taken from the temporal artery, than on thirty ounces drawn from any vein. He observed a furious delirium, attended with ferocious looks and redness of the eyes, removed, and a tranquil sleep induced, from which the patient awoke freed from all danger, by means of ten or twelve ounces of blood drawn in this manner. *Epid. Diseases.*

† On Boerhaav. § 702.
T. ii. p. 469.

‡ *Collect. Observ. Med. Pract.*

207. Moreover, we ought to administer internally antiphlogistic remedies, and copious diluent and cooling drink, calculated for checking the excessive irritability of the heart and arteries; the hands and feet ought to be immersed in warm water; and relaxing and cooling injections ought to be thrown in; the discharge of the fæces ought to be excited by employing cathartics, to occasion revulsion; and those things should be applied to the head, previously shaved, which prove moistening, emollient, derive to the surface, and check or gently allay the heat. It is proper also, that the patient should lie with his head raised, that he should sometimes sit up, breathe the cool air, that he should be lightly covered, that the light should be excluded, and silence preserved. When the violence of the fever is at length broken, and the inflammation nearly resolved, if excessive sensibility and ataxy of the nerves seem still to protract the delirium and watching, it is sometimes not only harmless, but necessary and useful, to employ narcotics, or opium itself, but in divided doses, and with caution.

208. But when it appears that enough of blood has been drawn, or the strength is incapable of bearing any farther evacuation of it, and the delirium and other effects of the inflammation still continue equally violent, it becomes then the best and safest plan to apply cupping-glasses, if they have not already been employed, to the occiput,

behind the ears, to the back, or legs, having previously made a pretty deep incision in the skin, or to apply leeches to the parts already repeatedly pointed out, or blisters to the soles of the feet and calves of the legs. Not a few practitioners, in consequence of having several times experienced the success of it, advise the applying a blister of cantharides to the hairy scalp, previously shaved. But that ought to be done with caution, and, in my opinion, particularly when the delirium is conjoined with coma and stupor more violent than usual, and neither the patient's temperament, habit of body, nor excessive sensibility of the nerves oppose it. For in these cases it is more proper to employ gentle revellents, as dry cupping-glasses, frictions, sinapisms, and bathing the feet and legs, particularly as Baglivi is of opinion, that in the inflammatory phrenitis blisters prove more hurtful than serviceable *.

* *Præfat. de Fibr. Motric. &c.* l. i. c. 6. Vid. *Comment. de Reb. in Med. et Scient. Nat. gest.* vol. ii. p. 400.

209. Moreover, in the species of phrenitis which we have named *erysipelalous*, blood must be let, but the bleeding ought not to be pushed so far as in the phlegmonic species. It is therefore proper to let it in smaller quantity, and less frequently, as it has been often observed to increase the delirium and occasion convulsion *. This not unfrequently happens, particularly in certain

states of the air, and in malignant or putrid epidemic fevers, as also in those of hospitals. Nay, it will sometimes be sufficient to attempt it by means of cupping-glasses or leeches, and to apply other things which produce revulsion from the head in the gentlest manner. It is attended with the greatest advantage to purge the belly, both by means of injections and crystals of tartar, or by whey in which tamarinds have been boiled; to allay the heat of the blood by subacid vegetable juices, or, when there is occasion for more decided practice, by means of sulphuric or nitrous acid; to dilute, obtund, and correct the bilious and alkalescent acrimony, not only by these means, but also by copious, acescent, farinaceous, cold drink; and if the age, temperament, season, climate, or the patient's habits, render it proper, even that which is mixed with ice may be given. The head, if in any case it be proper, certainly in this ought to be shaved, and sprinkled and rubbed with cold, or lukewarm, vinegar and water, or wine and water, the feet in the mean time being immersed in warm water, or wrapt up in flannel cloths wrung from it.

* Probably to this species belonged that phrenitis in which, as we are informed by Sims, bleeding reduced the strength, and occasioned death within an hour; while flannel cloths, wrung from water and wrapt about the feet, in consequence of calling forth a gentle sweat, proved highly beneficial. The eyes of these phrenitic patients were red, inflamed, and fierce, their tongue dry, there was great delirium, and a very hard

pulse. Most of them died on the third day ; those who survived it escaped death. The abuse of heating liquors and the catching of cold occasioned the complaint. It was the spring-season.

210. Nor ought we to depart much from this method of cure (208. 209.) in treating the *symptomatic*, or *secondary*, species (194.). In the ferous species, according to the different nature of its causes (195.), sometimes volatile remedies, together with blisters, and acrid, irritating, and revelent means, are proper ; at other times we must abstain from these, and rather oppose the acrimony by means of diluents, correctives, and diaphoretics. But the method of treating the mixed species (199.) of the complaint, ought to be composed of the method of cure required by the sanguineous and ferous species. In general, if it be of the spurious kind, there is not occasion for such repeated bleedings, nor such a concurrence of antiphlogistic remedies ; or at least different methods of cure are required, according to the variation of the cause from which the disease proceeds. The delirium which takes place during the increase of fevers is discussed by the same remedies which are adapted to the removal of the fever itself. That, again, which is cherished by a colluvies in the *primæ viæ* requires emetics and cathartics, and does not stand in need of bleeding, which, on the contrary, would be very hurtful*.

* Boerhaave & Swieten, § 85. 620. 701. 702.

211. Likewise the temperature of the air which the patient breathes ought to incline to cold and moist, and the weakest kind of diet ought to be employed. After the force of the fever and phrenitis have been blunted, if a slight delirium or coma, or other affection of the brain, still remain, and if the strength be much exhausted, the system must no longer be harassed by bleeding or purging, but the remainder of the cure ought rather to be performed by rest, abstaining from remedies, and using a bland kind of diet *.

* Swieten, l. c.

PARAPHRENITIS.

212. I SHALL now proceed to Paraphrenitis. This term is not employed by all in the same sense, but by some vaguely, by others more strictly. They comprehend by this word every kind of delirium attended with fever, which is induced sympathetically by the inflammation of some of the thoracic or abdominal viscera. But as many species of this paraphrenitis may be constituted as there are diseases of which it is a symptom. Under this head, also, some authors class the deliria which arise by sympathy of the nerves, from inflammation of the ear, or whitlow in the fingers, or from excruciating pain in any part. To it also might be referred those derangements of the mental faculty which super-

vene on acute fevers, whether the brain be affected idiopathically, or sympathetically, from worms, bile, or fordes in the *primæ viæ*. From which last cause men are so frequently affected with mental derangement, that Rahn, along with Tissot, thinks, that out of twenty cases of delirium, both acute and chronic, eighteen are referable to vitiated states of the hypochondres; and confirms this by quoting observations, from which it appears that in these cases the brain was altogether free of any taint*; although this apparent soundness of the brain does not always to a certainty point out that the delirium was sympathetic. Lastly, some understand by the name of Paraphrenitis, that delirium which is occasioned by other causes, besides inflammation, existing in the brain, and which I have already shewn (195.), by some is named *spurious phrenitis*.

* *Comment. de Reb. in Scient. Nat. et Med. gest.* vol. xviii. P. iii. p. 456.

† The brain may be injured in so many, and in such obscure ways, that even when no discoverable injury is found in it, it may be still doubted whether or not the phrenitis was of the sympathetic kind. For we are not intitled immediately to pronounce that the brain is uninjured, and that the delirium has arisen from another cause, when no discernible injury is to be found in it. The opinion of Rahn and Tissot is confirmed by the observations of Stoll. *Rat. Med.* T. iii.

213. Those who affirm that they employ the

word *paraphrenitis* more strictly, contend, along with Boerhaave, that it is nothing but actual inflammation of the diaphragm, which they say Hippocrates and Galen affirmed to be conjoined with perpetual delirium *. For the diaphragm, since it is considered as being very nervous, and, on account of its muscular structure, extremely liable to spasms, on becoming inflamed, is supposed to be very apt to draw the brain into consent, and to derange it so as to produce considerable and constant disorder of mind.

* Van Swieten in Boerhaav. § 907. 909.

214. It cannot be denied that sometimes, when the diaphragm is inflamed, particularly when the disease is increasing *, the mind is affected and deranged: at the same time it is an undeniable fact, as appears from the testimony of many authors, and unquestionable anatomical demonstration †, that inflammation, both of the tendinous and fleshy part of the diaphragm, has very frequently been unaccompanied with delirium, and, therefore, that delirium is not a peculiar and inseparable symptom of this disease. This is a fact which I myself have more than once proven on dissection of dead bodies, but in particular of late in the case of a friend of mine, who had been cut off in a few days by an inflammation of the convex part of the diaphragm, occasioned by the retention of an acrid herpetic humour, which had been carried to that part. Until the very last

hour of his life he was distressed with constant hiccup, but no delirium whatever was present.

* Ettmull. *Oper.* vol. ii. p. 565. P. Salius, *De Affect. Part.* c. 8. Carrer, *Oper. Citat.* sect. 2. c. 6. p. 492. † Willis, *De Anim. Brutor.* P. ii. c. 10. Morgag. *Epist. Anat. Med.* vii. n. 14. Carrer, l. c. Michele Sarconi *Istor. Ragionat. de Mali, &c.* P. i. p. 209.

THE DIAGNOSIS.

215. THE paraphrenitis explained in the first place (212.), as it is generally a symptom of other diseases, ought to be distinguished by the presence and combination of these. That which succeeds to inflammation of the diaphragm (213.) is distinguished from phrenitis chiefly by the injury of the respiration and the pain of the part *. For in phrenitis the head is affected with a throbbing pain, in the paraphrenitis, from inflammation of the diaphragm, an excruciating pain is felt in the præcordia, and is confined between the spurious ribs and lower vertebræ of the back. In the former the respiration is great and slow, particularly at the beginning; in the latter it is quick, small, irregular, and every time the breath is drawn the pain is increased. Moreover, the hypochondres are affected with pain, they become tense, as if drawn upwards, the abdomen is scarcely moved at all by inspiring, so much is the inspiration checked by the pain; frequently

anxiety, a dry cough, hiccup, and other symptoms experienced in pleurisy are added to these.

* But this will appear better, I suppose, in the chapter *De Pulmonum Inflammationibus, morbisque affinis*.

THE PROGNOSIS AND CURE.

216. IN whatever sense the term Paraphrenitis is received, it always denotes a severe and dangerous disease. But the most formidable of all the species is that which is occasioned by inflammation of the *septum transversum*. As it is usually occasioned by the causes which give rise to pleurisy, and generally terminates in the same manner; so likewise it requires the same method of treatment which is employed in pleurisy and other inflammations.

MANIA AND MELANCHOLY.

217. HITHERTO I have been speaking of the species of delirium which are accompanied with fever. It remains for me to give a brief account of those which are unaccompanied with it. First comes *mania*, which is invariably defined to be a delirium unaccompanied with fever, but of the furious and outrageous kind. It is therefore distinguished from *true phrenitis* by the absence of fever. But it not unfrequently happens that fe-

ver supervenes on mania, particularly when it has attained its height, as an accessory symptom. In this species of madness several of the ideas are deranged, and the mind agitated, accompanied with increased strength and great fury; and hence it greatly differs from *melancholia*, in which the mind, being “obstinately bent on one or two ideas or objects only, is deranged, and at the same time the complaint is accompanied with fear and despondency; while in other respects the mind is perfectly sound.”

218. Under the head of melancholia, as a genus, fall *lycanthropia* or *cynanthropia*, in which the patients imagine themselves to be wolves or dogs, and endeavour as much as possible to imitate the manners and way of living of these animals. To this place also belongs *nostalgia*, or the vast grief and wretchedness under which a person sometimes labours when forced to be absent from his native country, his mind being constantly engrossed with no other idea than the ardent desire of returning home. The Swiss *, Germans, and other nations accustomed to dwell in mountainous situations, on being removed to foreign and level countries, where different manners and living prevail, are most liable to this mental affection. Such is the force of that melancholy, that the soldiers, on being attacked with it,—which very frequently happens,—by no danger, by no dread of punishment or death, can be deterred from

desertion, preferring death itself to being any longer prevented from revisiting their native country. Hence, if they be not gratified in their wish, being worn out with want of sleep, grief, indigestion, languor, anxiety, stupor, palpitation of the heart, slow fever, and emaciation, they are very quickly carried off.

* Nostalgia, perhaps from νοστέω, *redeo*, and ἄλγος, *dolor*. Harder has denominated it with great propriety *nostomania*, being, as it were, a furious desire of returning home. Others, as Zwinger, have thought fit to name it *pothopatridalgia*, from πόθος, *desiderium*, and πατρίς, *patria*, being, as it were, the grief or pain arising from regretting the being absent from one's native country; likewise *philopatridomania*, *nostopatridalgia*, *nostopatridomania*, the etymology of each of which is manifest. Jo. Jacobus Scheuchzer, in order to gratify his countrymen, wrote a dissertation on nostalgia worthy of perusal, which is to be found in page 307. of the first volume of the *Comment. Instit. Bononiens.* Likewise a very complete dissertation on the same subject was published by Harder, highly deserving of being consulted. In the *Diarium Medicum* of Orteschi, a physician of great learning, and a particular friend of my own (vol. iv. p. 372.), is to be found a short treatise on nostalgia, published by Pelligrini for the advantage of the Swiss, and it may be consulted with utility, although he differs in some points from the opinions of Scheuchzer.

219. The other varieties of melancholia, when the patients conceive themselves to be kings, or noblemen, or bishops, or imagine that they are dead, or changed into earthen vessels, or barrels, or that some parts of their body are composed of other materials than of flesh and bone,

or complain of having crabs, frogs, or serpents within them, or when they labour under any other obstinate and singular mental delusion, have no particular name, only retaining the generic one of melancholia *. But according as the complaint originates from a morbid condition of the hypochondres, or from affections of the uterus, it is named *hypochondriacal*, or *hysterical*. The latter of which, when it is conjoined with such an immoderate desire of venery, that the patient solicits every one coming in her way, is generally called *nymphomania*, or *metramania* †, or *furor uterinus*. Again, that species of furor which arises from love, and which sometimes intirely differs from *nymphomania*, and belongs more properly to men, although women also are liable to it, is named *erotomania* ‡. Some also class among the melancholic affections *tarantismus*, or the *morbis saltatorius*, because those who are affected with it have the most ardent desire to dance; and on a certain tune, which is called *tarantella*, and is familiar to the people in Apulia, being played, they spring up and dance, until they become quite exhausted, and are all over bedewed with a profuse sweat. It is reported that they are thus cured. Many, with Baglivi, are of opinion that the disease arises from the bite of the tarantula, from which it has its name. Others, again, with Seraus, contend that this disease, independent of the bite of the tarantula, prevails as an

endemic in Apulia and other warm countries, and that it is a species of hysterical or hypochondriacal *melancholia*. But were it in fact produced by the poisonous bite of the tarantula, I should treat of it elsewhere when I come to speak of the diseases occasioned by poisonous bites; where, in like manner, *hydrophobia*, which is occasioned by the bite of rabid animals, although by most authors it is commonly referred to delirium and aberration of mind, will better come in ||.

* Modern nosologists, however, give particular names to each of these species. Thus Sagar constitutes fifteen species, namely, 1. the *melancholia vulgaris*, 2. the *amatoria*, 3. the *religiosa*, 4. the *argantis*, 5. the *moria*, 6. the *attonita*, 7. the *errabunda*, 8. the *saltans*, 9. the *hippanthropica*, 10. the *melancholia Scytharum*, 11. the *melancholia Anglica*, 12. the *beatifica*, 13. the *Zoanthropica*, 14. *enthusiasm*, 15. *phrontis*. See the explanations of them in Sagar, *Syst. Morb. Symptom.* cl. xiii. ord. iii. gen. xx. p. 743.

† *Nymphomania* is derived from Νύμφη, *sponsa*, or more properly from Νυμφών, *thalamus nuptialis*, and μανία, *furor*; and it signifies, the furor of newly married women, or the furious desire of the marriage-bed, or longing for a man. But we shall treat of it at greater length and more properly when speaking of the diseases of women. *Metramania*, again, is derived from μήτρα, the *matrix*, or *uterus*, μανία, and *furor*.

‡ *Erotomania*, from ἔρος, and μανία, namely, the madness arising from love.

|| Concerning *tarantismus*, see Cartheuser (*De Morbis Endemicis*, p. 44.), who has given a succinct view of all the phenomena of this disease. *Hydrophobia*, in my opinion, is not referable to the mental *hallucinations*. For it is a spasmodic affection of the oesophagus and stomach, by which the patients are prevented from drinking. Nor are delirium and madness al-

ways conjoined with it. I have observed patients labouring under hydrophobia retain their senses to the last hour. Concerning the bite of the mad dog, the following works may be consulted : *Benigni Canellæ de Vigani Ripensis Tyrolensis dissertatio de hydrophobia.* Oenipont. 1774. *Observations sur la nature, et sur le traitement de la rage, &c.* par. M. Portal, Yverdon, 1779. *Compendio di Notizie interessanti circa il veleno de' rabbiosi animali* di Felice Asti in Mantoua, 1778. To which may be added a letter of the very learned Falethi, chief physician in Urbinum, to Jo. Bapt. Balbus of Bologna, *De immani quadam passione hysterica et aquisfuga ; ubi nonnulla quoque ad hydrophobiam spectantia disputantur.* Diar. Pet. Orteschii, an. 1766. p. 196.

220. But although I have observed that melancholia and mania differ from one another in the manner and degree of the delirium (217.), it must be recollected that these affections are so nearly allied together, that, according to Willis, Morgagni*, and others, they frequently exchange places, and succeed to one another. Which vicissitudes frequently cause the physician, on account of the silence and fear, or loquaciousness and fury of the patient, succeeding one another, to remain doubtful whether to declare that the patient labours under melancholia or mania. Both complaints, however, are divided into *primary*, which arises from no disease of the body, but merely from a morbid state of the brain, and *secondary*, which proceeds from a vitiated state of the whole blood, or from an injury sustained by some of the viscera.

* Vid. *Epist. Anat. Med.* vii. n. 1.

221. Likewise the causes of both complaints are nearly in common to them. *Mania* appears to arise immediately from that state of the brain in which such a derangement of ideas takes place as gives rise to rage, violence, and increased muscular strength. *Melancholia*, again, proceeds from that state of the brain which obstinately exhibits one or two ideas to the mind, which it cannot remove at pleasure, and which affects the judgement, generally occasioning fear and despondency. Such mental derangements are occasioned somewhat more remotely, either by vitiated conditions occurring in, or situate near, the solid parts of the brain, or inherent in the whole body, particularly the intire mass of blood, or situate in some viscus, although remote from the head, or elsewhere. To the former causes, as appears from the dissection of people who have died of mania or melancholia, belong dryness and induration, or too great laxity, softness, and moisture, of the cortical or medullary substance of the brain; a vitiated condition of the corpus callosum, or medulla oblongata, or pineal gland; the ventricles being filled with water; the vessels being distended with black blood; tension, laxity, or corruption of the meninges, or their being overspread with bloody serum; polypi in the sinuses of the dura mater, or small stones, and other injuries; although most of these have frequently been found in other diseases of the head also, and are not found in every case of ma-

nia and melancholia. Under which head also seem to fall, a mal-confirmation of the cranium, or any kind of tumours, even external ones *, and a bad condition of the brain, either natural, hereditary, or acquired, and likewise blows. To the latter class belong all those things which condense and coagulate the fluids, which disperse their finer parts, or resolve and destroy their crassis, as the abuse of fermented liquors, or spirits; frequent intoxication; immoderate venery; warm and dry air; insolation; hard study; violent emotions of mind, particularly anger and grief; profound meditation; ardent love; immoderate ambition for honours and dignities, or disappointed hope; great and sudden terror †; bad news suddenly communicated; of which causes many, without any taint of the fluids, may so derange the sensorium commune, and injure the nerves and their origin, as readily to give rise to these diseases. Likewise those things which induce plethora, and cause a determination of fluids to the brain, or excite an acrid dyscrasy in the blood, as the suppression of evacuations of blood, ichor, scabies, and of the hemorrhoidal or menstrual discharge; the matter of scurvy, syphilis, arthritis, gout, or fever being transferred to the brain ‡; long continuance of hypochondriasis or hysteria; black bile contained in the abdominal viscera, and producing irrita-

tion there, or removed, from thence dissolved and carried into the circulating mass; a bilious colluvies; a melancholic diathesis; obstructions in the lower parts of the belly; retention of various acrids; the sanguineous, choleric, or atrabilious temperament; and the like.

* Frid. Gabr. Gottlieb Sibern makes mention of a case of mania, which probably was occasioned by an external tumour above the left parietal bone, in the neighbourhood of the lambdoidal and sagittal futures, and was cured in consequence of the tumours having been brought to suppurate, and being opened. *Collect. Societ. Med. Hauniens.* vol. i. p. 86.

† Sometimes the sensorium commune is affected with so great terror, that such an idea is excited in it as cannot afterwards be obliterated by any means; in consequence of which the patient dwells on no other subject, even against his will; and this seems to constitute the worst species of melancholia. Van Swieten, § 1108.

‡ Not only the febrile matter not being sufficiently corrected, or its being imperfectly expelled, occasions mania,—for this complaint frequently succeeds to long-continued intermitting fevers,—but also the retention of morbid matter of any other kind, which ought to have been expelled. Nay, the same effect is perhaps occasioned by the secretion of the milk itself being sometimes checked, not to mention its having become corrupted, or its being repressed.

222. But it appears from medical histories that mania has more frequently arisen from the exsiccation or imprudent checking of scabies, herpes, impetigo, and other cutaneous diseases; from the cutting away of the plica polonica; from too

warm or too cold weather ; and from the excessive quantity, stagnation, and corruption of the semen and feminal fluids, named *aphrodisii*. But sudden and acute mania is occasioned particularly by the seeds and roots of hyoscyomus and stramonny, or night-shade, by the berries of the solanum furiosum, or belladonna, by the cicuta aquatica of Wepfer, and perhaps by a good many other poisonous plants, and particularly certain kinds of deleterious mushrooms. To these some add the poisonous bites of particular animals, especially rabid ones.

THE DIAGNOSIS.

223. THE diagnosis of both kinds of delirium, namely, of the maniacal and melancholic one, and of their species and varieties, is easily collected from what has already been laid down (217. to 220.). But it is necessary to turn our attention particularly to preceding circumstances, of which mention was made when I enumerated the causes. Hence it is proper to observe, that those persons, as I have already remarked (221. 222.), who have long laboured under hypochondriasis or hysteria, or morbid conditions, particularly scirrhus, of the intestines, in whom customary and salutary evacuations of blood are suppressed, who are oppressed with care, who indulge immo-

derate desires, who are born of melancholic parents, and abound with thick, viscid blood, and in whom, from various causes, too great a determination takes place to the head, are more liable to the complaint than others. But the approach of melancholia is announced by sadness, fear, long-continued watching, and avoiding society. The grief gradually increases, and tears are frequently shed, although some patients are perpetually laughing. They are uniformly engaged with fruitless and intense thinking, insomuch that they very frequently remain in a state of stupor, with their eyes fixed on the ground, or being suddenly roused by imaginary alarms, they sigh and quicken their pace. But as the complaint increases they shun the sight and conversation of people, retiring to solitary situations, where remaining in concealment, and wholly occupied with their imaginary distress, they live in silence and sloth. Those who are more severely affected with the complaint conceive themselves to be beasts, or dead, or made of glass; and, therefore, some imitate the barking of dogs, or howling of wolves, or crowing of cocks, or, from the supposition that they are dead, reject all meat and drink; while others retire from the objects standing in their way, afraid of being broken to pieces. Others, again, on the most trifling occasions, have a great propensity to fall into a rage, are remarkably fickle, and exceedingly anxious about

the most ridiculous trifles, being at one time liberal and prodigal, at another narrow and avaricious ; sometimes being greatly afraid of death, at others, which is surprising, they fall into despair, and lay violent hands upon themselves. On the other hand, it appears that mania is threatened from obstinate watching, headach, tinnitus aurium, unusual laughter or irascibility, and moroseness. When the mania at length commences, the eyes grow red, the eye-lids are thrown into very frequent motion, and the patients thus affected become talkative, quarrelsome, and obstreperous, behaving in a most outrageous manner, and, assuming a fierce and threatening aspect, they are apt to attack all around them with very great strength. Both melancholic and maniacal patients are generally anxious, remain awake, bear the inclemencies of the weather with impunity, and, if they be not restrained, throw themselves out of windows, or plunge into wells, rivers, or lakes, or in other ways endeavour to make away with themselves. When the complaint proceeds from the hypochondres being affected, the face is pale ; the extremities cold ; there is frequent palpitation of the heart, and an anxiety of the præcordia frequently comes on ; the respiration is profound and interrupted ; the head is painful ; the belly is bound ; the intestines rumble ; the flatus passes upwards ; something is

thrown off by eructation or vomiting, which is of a corroding, acid, or bitter taste ; the appetite is at one time keen, at another there is none at all ; and the pulse is rare, slow, or irregular and languid, or very variable. But when the disease proceeds from the uterus, or hysteria ; a sense of suffocation ; an irregular or defective flow of the menses ; fluor albus ; copious, watery urine ; tenesmus, strangury, or ischuria ; emissions and tentigo ; various kinds of tumours, pains, and inflations of the hypogastrium, ovaria, or uterus, occur. Similar symptoms, in like manner, happen in hypochondriacal patients, sometimes merely from increased sensibility of the nerves. A knowledge of the remaining varieties and causes from which they spring, may be obtained, partly from the symptoms above enumerated, partly from the retrospect of past circumstances.

THE PROGNOSIS.

224. ON the whole, all the species of *insania* are difficult of cure. The hereditary species, or that derived from a morbid state of the brain, affords scarcely any hope ; and if it ever becomes dormant it is apt to return. In like manner the *primary* one, or that which depends upon a phantasy and mental illusion, unconnected with any morbid condition of the body, is difficult of cure ;

for it indicates some injury of the internal structure of the brain. On the other hand, the *secondary* species, occasioned by the suppression of evacuations, errors in diet, or a morbid state of body, more frequently is restored by art and time. That which is accompanied with laughter and joy is safer than the species which is attended with thought and grief. Likewise, when the complaint is recent it is sometimes cured, but scarcely ever when it is of long standing. In general we may expect a return of health from an epistaxis taking place, from the return of the hemorrhoidal or menstrual discharge, from a diarrhœa, from varices of the legs, from dropsy, from scabies, from a quartan and other intermitting fevers, from an abscess, from change of air, weather, and place, and from advancing in life. Some of the prognostics of Hippocrates apply to this part: “If varices or hemorrhoids supervene in people labouring under infania, a solution of the disease takes place*. Dysentery, or dropsy, or an emotion of mind, occurring in mania, afford a favourable prognostic †. A pain attacking the feet or chest, or a violent cough arising, resolves mania ‡. If the complaint be resolved without pain in the feet or breast, or violent cough, blindness ensues ||.” But ulcers arising in the face or feet scarce afford any favourable expectation, while no hope is left by the total loss of appetite. On the other hand, we have reason to form favour-

able expectations from herpes and serpigo breaking out somewhere; for nothing alleviates diseases of the head more than the translation of such an acrimony to the surface.

* Aph. 21. sect. vi. † Aph. 5. sect. vii. ‡ *De Indicat.* 65.
 || *Ibid.*

225. Hypochondriacal or hysterical melancholia is generally much more easily cured than the other species of the complaint. Black stools being passed frequently prove critical*. It more frequently attacks men, particularly those advanced in life, than women, but in the latter proves more obstinate and dangerous. Sometimes melancholia passes into epilepsy, and epilepsy is again changed into melancholia. It is sometimes succeeded by constant fatuity, convulsions, and apoplexy. The author of the *Coacæ Prænotiones* observes: "When tremors supervene in violent and furious mental derangement, they prove fatal*." Likewise, "grinding of the teeth, contrary to custom‡, or their becoming dry||, denote a fatal termination." Death is known to be approaching, if coma, epilepsy, or loss of strength supervene. Sleep, if it be tranquil, generally alleviates every species of insanity. But we must not rely upon every remission which takes place, for the disease is quickly and unexpectedly aggravated.

* *Coac.* N. 486.† *Num.* 93. *et Præd.* x. 14.‡ *Coac.* N. 235.|| *Ibid.*

THE CURE.

226. IN every species of mania and melancholia, and particularly in that which proceeds from derangement of the ideas, and a morbid condition of the sensorium commune, rather than a faulty state of the body, change of place, and of the manner of life, become highly necessary. For by travelling, by the motion of the body, and by the occasional succession of new objects, the false, inordinate, or fixed ideas are gradually obliterated or brought back to their proper order. All those things ought to be removed by which the patient's love, rage, hatred, or grief, were formerly occasioned, and he must be amused with games, singing, concerts, and the agreeable conversation of his friends. This treatment is particularly calculated for melancholic patients. Moreover, nostalgia requires purer air, and a more elevated situation, a manner of life conformable to that of the patient's native country, and, lastly, his return home, which is superior to all the other remedies.

227. Bleeding is more frequently adapted to maniacal than melancholic patients; and chiefly when plethora, or the suppression of some evacuation, or heat of the air, or excess in drinking

wine, have given rise to the complaint. The jugular veins, or the vena frontis, or even the temporal arteries, may be opened with advantage in this case. Moreover, it is serviceable to open the belly by means of medicines repeated after a certain interval, employing milder ones in the sanguineous and bilious temperament, and such as are more acrid and powerful in the phlegmatic one, among which black helebore, and its extract, hold a principal rank.

228. Mutzell has frequently been successful in removing melancholia arising from grief, an indolent life, and a morbid condition of the hypochondriacal viscera, by giving every day a potion composed of half an ounce of the tartarus tartarificus, two drachms of the extract of lesser centaury, and eight ounces of water. When bitters were rejected, in place of the extract he substituted as much purified honey as seemed necessary, occasionally interposing laxatives. He mentions by this method having repeatedly extirpated, not only melancholia, but mania itself. For in this manner the black bile is resolved, corrected, and thrown off.

* *Comment. de Reb. in Med. et Scient. Nat. gest.* vol. iv. p. 92. et seq.

229. In maniacal patients of a warm temperament, who are young, of a good habit, accustomed to an active life, and to using heating

things, every thing acedcent, nay, the stronger acids themselves,—by means of which the heat of the blood, its tenuity and alkaline acrimony, too great sensibility of the nerves, and excessive irritability of the fibres, are allayed,—afford the greatest benefit. On which account likewise the drinking of cold water is greatly recommended. Distilled vinegar, in which, when warm, half a drachm of camphor has been dissolved, with sugar and gum-arabic, and afterwards diluted with the water of elder-flowers, is highly extolled by Locher, and others after him *. And medical histories mention, that cases of mania, which had baffled all other remedies, have been cured by camphor alone, its dose being gradually increased to a drachm, and even more in day †. But from repeated trials I have found, that from the employment of this remedy, maniacal patients, who seemed to have become somewhat calm, whenever they resumed the camphor, sometimes relapsed into their fury; probably because it increases the force of the heart, and accelerates the circulation, augmenting the heat, and causing the expansion of all the fluids. In this case its employment is probably rendered more tolerable by taking it dissolved in vinegar. Hence physicians of no small repute are of opinion, that it proves more serviceable to melancholic patients, and those who are, as it were, in a state of stupor, having a small, slow, and weak pulse, than in other

cases. Mutzell, however, administered half an ounce of camphor daily to a patient labouring under melancholic stupor for the space of two weeks, without experiencing any good effect ‡. So great frequently is the combination of insuperable causes, and variety of circumstances, that even the best remedies do not always answer our expectations; nay, sometimes they produce the very contrary effect. But if it be allowable to pronounce any opinion on the subject, I should suppose that camphor is serviceable only when the *sensibility* of the nerves seems to be too great, but not the irritability; and that it proves hurtful, or nugatory, when the former is languid or torpid, or the latter excessive, and the vessels not sufficiently emptied. For camphor certainly diminishes the *sensibility*, but increases the *irritability*, and heat of the blood ||.

* Locher. *Observat. Pract. circa Luem Vener. Epileps. et Man. &c. Vienn.* 1762. p. 57. et seq. Orteschi, *Giornal. Med.* 1765. p. 10. Locher employed the following formula: Rec. Camphor. drachm. semis, sachar. canar. mucilag. gumm. arabic. an. drachm. j. His invicem in mortar. marmor. trit. add. acet. calid. unc. semis, aq. flor. sambuc. unc. vj. fyr. flor. pap. rhœad. unc. j. M. † Kinneir, in a work intitled, *Saggio delle Transazioni Filosofiche di Tommaso Derham*, vol. iv. p. 90. et seq. Craen, *Prax. Med. Reformat.* p. 132. Hoffman, *Med. Syst.* T. iv. P. iv. c. viii. obs. 8. Orteschi, *Giorn. Med.* T. 2. ann. 1763. p. 373. Dall' Arme, *Sagg. di Med. Pratic.* P. ii. osserv. 13. c. 14. Boenneken in *Collect. Francon. &c.* vol. v. P. xxviii. p. 294. & in *Comment. de Reb. in Med. et Scient. Nat. gest.* vol. xi. p. 525. ‡ *Comment. Cit.* vol. iv. P. i. p. 93. || Vid. *Theses de Camphora, ejusque virib. a Se-*

baft. Severio in *Gymnaf. Ticinenf. Propug.* ann. 1776. et Baffian. Carminati, *De Animalium ex Mephitib. et Nox. Halitib. Interitu*, &c. l. 3. c. 3. p. 191.

230. The outrageous fury of maniacs is very frequently subdued by the tepid bath, which proves moistening, relaxing, promotes the perspiration, and very effectually derives from the surface. Nor is this remedy of less utility to patients labouring under melancholia, because by it the whole body is so changed, that even that obstinate and fixed inflexion of the fibres, by which particular images of ideas are represented to the mind, at length, if I may be allowed the expression, being in some measure relaxed, is smoothed and obliterated. But this will more readily and certainly happen, if, while the whole body is softened with the steam of the hot bath, and rendered permeable, cold water be poured upon the head previously shaved. It will be proper to consult an account of mania accompanied with priapism which De Monchau cured in this manner *. The learned Orteschi, lately deceased, in his Medical Journal, has mentioned, as a surprising circumstance, an hysterical mania having been cured in a similar manner by Pommius, who had recourse to the employment of the bath for eight hours every day, and the constant application of rags wet with cold water to the head,—a cure which seems almost incredible †. But long before that

my learned and ingenious friend, Ghis of Cremona, had recovered maniacal patients, by making them drink copiously of the very coldest water, and by the affusion of it twice or thrice a-day upon the head †.

* Orteschi. *Giornal. Med.* T. 4. p. 105. † *Id. ib.*
T. 2. p. 412. *Lettere Mediche*, Lett. 1. p. 24. & seq.

231. But it is not only of the highest service to employ the affusion of the coldest water upon the head, but also to immerge the whole body in the cold bath *, which has proved of the greatest advantage, particularly to those who have fallen into the complaint in the prime of youth and strength, while in a plethoric state and during a very sultry summer, after a debauch in drinking strong wine. Instances which sufficiently prove that fact are to be found in the works of Van Swieten † and others, which may be consulted at pleasure. But one which has been recorded by that ingenious physician and mathematician, Michellott, a countryman of my own, deserves particular notice. — A young man, during a sea-voyage, after having been long exposed to the heat of the sun, and having drunk wine to excess, was seized with a very acute mania, but at length got intirely rid of it in consequence of undergoing copious bleedings, being put upon a very spare diet, drinking cold water, and the affusion of it on

the head having been employed ; which was the method of cure prescribed by this author ‡.

* Meade, *De Venen.* p. 139. 140. † *Comment. in Boerhaav.* § 1127. See also Orteschi, *Giornal. Med.* T. 4. p. 124. Willis, *Pathol.* c. x. ‡ *Hist. de l'Acad. des Scienc.* an. 1734.

232. Authors are not agreed as to the effects of opium in mania and melancholia. Some assert that it is of the greatest utility ; others, again, blame all kinds of narcotics, and affirm that they are highly pernicious. I do not doubt that both sets speak from experience ; but how difficult and uncommon a thing is it to estimate experience as it ought to be ! Van Swieten tells us, that a physician, who was celebrated for his treatment of maniacs, used to give his patients two grains of opium in the morning, and the like number in the evening, and, if sleep was not procured, he increased the dose gradually, until he obtained the desired effect. And, in fact, I have found nothing more efficacious for preventing watching, and allaying excessive sensibility and mental derangement,—after the necessary evacuations have been employed, and the patient's strength somewhat reduced,—than opium, of which although experience has shewn that patients can bear great doses sometimes without injury, I would not advise the proceeding to very large doses, but with the utmost caution, and beginning with

small ones. For as in particular idiosyncrasies and constitutions it sometimes increases the heat and motion of the blood, redness of the face, watching, and restlessness, so in others, even when given in a small dose, it unexpectedly occasions a fatal lethargy. We must not, therefore, have recourse to this otherwise very useful remedy without mature deliberation. On which account, some physicians make a practice of beginning with preparations of white poppy, and afterwards proceed, as occasion serves, to the cautious use of opium itself. Its gummy extract, separated from the deleterious and noxious resin, is now considered as safer †. But Meade himself, although no great friend to soporifics, grants that they may be employed when the patients are agitated with great terror, or exhausted with watching ‡.

* L. c. § 1127. † Opium consists of two parts, namely, a gummy and resinous one. The resinous part possesses a particular poisonous and stupifying property, hurtful to the nerves, while the gummy part is of an anodyne, sedative, and gently-soporific quality. Beaumè invented a method of separating the gummy from the resinous principle, by which the opium is much improved: but as his process requires a very long time, the extract, as it is called, is scarcely ever to be found prepared in the shops. Thanks are therefore due to Bouquet (*Mem. de la Soc. Roy. de Med.* vol. i. p. 403.), who has taught a much more easy way than that of Beaumè, of preparing the gummy extract of opium. It is put into a mortar, and slightly triturated. The coldest water is then poured upon it, when it is again triturated so as to tinge the water with its colour. The water thus coloured is decanted. Fresh

water is poured upon the remaining opium, and this is repeated until the water is no longer tinged. The water thus drawn off and strained ought to be evaporated by means of a gentle heat. The residuum is the gummy extract, deprived of the pernicious and narcotic part.

† *Monit. et Præc. Med.* c. 3. p. 51. *ed. Lond.*

233. Among the sedatives and narcotics in our times, the extract of hyoscyomus, or more properly its juice, inspissated over a slow fire, has begun to be recommended as an efficacious and excellent remedy in maniacal and melancholic delirium. But Greding, in consequence of having performed twenty-six accurate experiments upon the subject, is convinced, and wishes to inculcate the same idea into the minds of others, “that hyoscyomus can neither be used with safety internally, nor is to be considered as a salutary remedy in melancholic and maniacal complaints *.”

* *Advers. Med. Præc.* Ludwig. P. i. p. 71.

234. If a person does not agree with using opium, or if it does not produce a sufficient effect, or the efficacy of the extract of hyoscyomus is suspected, with the same view musk may be employed. For it occasions a very gentle diaphoresis, and induces sleep; and is therefore employed in mania with success, as a resolving and anodyne medicine *. We are informed by Wall and Locher, that musk conjoined with cinabar was employed with great advantage in the

case of a man labouring under *erotomania* †. Sebastiani restored a maniac in the fortieth year of his age, by twice giving him the *pulvis Tunquinnensis*, which consists of sixteen grains of the best musk, and twelve grains of native and antimonial cinnabar ‡. Brooks, in his General Dispensatory, mentions having given a maniac, with equal advantage, twenty grains of musk for a single dose ||. Two things, however, are to be observed in the exhibition of this remedy, namely, that it ought to be given liberally, and its heat and power ought to be mitigated by means of nitre and other correctives: otherwise it either produces no good, or occasions very troublesome agitation and heat.

* Lang. *Miscel. Verit.* fasc. i. p. 98. † *Philos. Transf.* n. 474. Locher. *Oper. Cit.* p. 62. Haartman. *Act. Acad. Reg. Scient. Suec.* vol. xxiii. p. 267. ‡ *Act. Acad. Elect. Mogunt.* T. ii. p. 483. || Ludwig. *Comment. de Reb. in Med. et Scient. Nat. gest.* vol. v. p. 425.

235. Nymphomania, in the same manner as satyriasis * in men, is generally opposed by repeated bleeding; by cathartics; by watery drink mixed with nitre; by the bath, particularly the cold bath; by the constant application of fomentations of the same nature; by a vegetable diet, and that too a spare one; and, lastly, when it is allowable, by marriage, which is undoubtedly the most effectual remedy. Although I have seen the furor uterinus in women married to able

men, which continued with the utmost obstinacy for some weeks, nay, for months, and did not cease until conception took place. It has sometimes been necessary to restore women labouring under this furious desire to a sense of modesty, by prescribing abstinence, and by severely reprimanding and flogging them.

* Tentigo, or an erection of the penis, unaccompanied with the venereal desire, is properly named *priapism*, and, when accompanied with it, *satyriasis*.

236. I once restored to perfect health a young man labouring under mania of long standing, after having discovered the cause of the complaint, namely, an impetigo, to which he had been accustomed, having been forced in, by repeated bleeding, cathartics, the tepid bath, the affusion of cold water on the head, whey, and camphor;—by which last, however, I repeatedly found that he was thrown into greater fury;—by nitre, the milk expressed from the cold seeds; and, lastly, by opiates. I then gave him the *æthiops antimoniatum*, twice every day, for upwards of forty days, in consequence of which he not only gradually recovered his understanding, but also the impetigo was brought back to its former situation, namely, the metacarpus of one hand; and he remains in perfect health to this day, although seven years have already elapsed. I must likewise here take notice of the cure of a chronic

mania which Schlichting devised and performed with the greatest success *. After causing the head to be shaved, he rubbed it twice a-day with mercurial ointment, until a salivation was occasioned, by which the patient was restored to perfect health. And Mutzell at length removed a case of melancholy which had degenerated into the most profound stupor, and baffled every remedy in a very remarkable manner, by the inoculation of scabies †.

* *Nov. Act. Phys. Med. Acad. N. C. T. i. p. 346.*

† Orteschi, *Giorn. Med. an. 1762. N. 28.*

237. The marvellous stories which are told concerning asses blood, received from the veins of the neck or ears upon linen rags, and afterwards dissolved with the water of the flowers of hypericum, and expressed with a little vinegar, as a specific for the complaint, when drunk off by patients labouring under mania,—with submission to Hoffman * and Boennecken †,—seem to deserve being credited rather by old women than by rational physicians. With regard to castration, which Lieutaud proposes ‡, and the employment of saccharum saturni, from two to eight grains, in order to allay the furor, I should strictly forbid them, the one as being a cruel remedy, and not void of danger, the other as being a slow poison.

* *Med. Syst. T. iv. P. 4. c. viii. § 23.* † *Bigæ Casuum Med. &c. 1744. ; and Orteschi, Giorn. Med. T. ii. p. 158.*
‡ *Préc. de Med. l. i. sect. 2. p. 206. ed. 1761, Paris.*

238. When the furor has been occasioned by the swallowing of poisonous substances (222.), and the cause of the complaint is soon discovered, we must hasten to employ emetics, and oily and fatty remedies, mixed with tepid water, in order as quickly as possible to expel the hurtful matter upwards and downwards. Likewise, the repeated throwing in of relaxing injections, to remove whatever is contained in the lower part of the intestines, will prove of the greatest service. Milk also, drunk abundantly, is well calculated for obtunding the acrimony of the poison, particularly when it is of a caustic nature. But nothing is more efficacious in correcting such a poison, particularly if it be of the vegetable kind, when once it has begun to pass into the blood, than the vegetable acids, and particularly pure vinegar, or that which is diluted with water.

239. The diet of all patients labouring under mental affections requires the strictest attention being paid to it. That of maniacal patients ought to be more spare than what is allowed to patients labouring under melancholia. The latter may be allowed some wine occasionally, to remove the terror and grief with which they are affected. But particular care must be taken to prevent their fury or despondency from hurrying them on to commit some desperate action. It is proper, therefore, to watch them with the utmost care,

and even to bind them with ropes, if necessary ; sometimes exhorting and soothing them with humanity, at other times harshly reprimanding them, and forcing them to obedience. Melancholic patients have frequently been cured by some sudden and violent emotion, in consequence of which the obstinate and permanent idea with which their mind is possessed is obliterated. We must therefore correct their mental delusion by some fraud, employing sometimes one, sometimes another stratagem, for their recovery, as may appear adviseable.*.

* The French set great value upon a work intitl'd *De Melancholia et Morbis Melancholicis*, published at Paris in the year 1765, by Lorry, which it may be proper to consult.

FATUITY.

240. IT remains for me, as I formerly promised, to say something concerning *fatuity*, which the Greeks name *morosis*, or *moria*. In it the patient is neither furious, nor sad, nor timorous, nor anxious, nor exhausted with want of sleep, but labours under imbecillity both of judgement and memory, insomuch that remaining dull and destitute of reason like an infant he is delighted with mere trifles, pursuing absurd and ridiculous amusements, without being hostile either to himself or others. It is therefore distinguished from the other cases of mental derangement, of which I have hitherto spoken, according to the general

consent of physicians, by being a weakness or defect of the intellectual operations and memory, without any fury or inordinate motion of the body, or fear, grief, or fever *. Some consider *fatuity* and *amentia* as synonymous terms. *Amentia*, or *anoia*, however, seems to be the height of idiocy, in which every ray of reason appears to be obliterated, or wholly overpowered †. But as this mental imbecillity proceeds from a cause which generally cannot be removed, such as a mal-conformation of the head, or from the texture of the brain being injured, or indurated, or from some other irremediable morbid condition, frequently born with the patient, or occasioned by preceding diseases, it can hardly be admitted among the diseases which fall under the power of medicine. For who can expect ever to be able to remove decided fatuity?

* Caldan. *Instit. Pathol.* § 303. Vogel. *Op. Cit.* § 750.

PART II.

CHAPTER VIII.

OF CONVULSIVE AFFECTIONS.

241. **F**ROM the injuries of the animal functions and internal senses, and the morbid conditions of voluntary motion, of which we have hitherto treated, we proceed in order to the diseases consisting in increased animal motion. If, therefore, any part, or the whole body, be at one time contracted, at another relaxed, and affected involuntarily with alternate and unusual motions, it is said to labour under clonic or convulsive motion, or, to use the pure Latin of Celsus, *nervorum distensio* *. But if it become tense and rigid, without any intervening relaxation, and if this takes place with an uniform and violent action of the muscles destined for flexion or extension, or of any of the other ones whatever, pathologists say that in such a case a tonic motion and *spasim*, as the Greeks call it, or,

according to the Romans, what is called *conductio*, and *nervorum rigor*, take place †.

* L. 3. c. 23. p. 172. *ed. Comin.* † *Id.* l. 4. c. 3. n. 25. *ed. Comin.* Cœl. Aurelian. *Acut. Morb.* l. 3. c. vi.

242. To the first class (241.) ought to be referred, epilepsy, of which I shall hereafter speak at greater length, irregular convulsive motions, hysterical and hypochondriacal convulsions, and St Vitus's dance, or the scelotyrbe of Sauvages, which is an alternate and irregular commotion of the legs, feet, and sometimes of the hands, or rather an involuntary and inordinate kind of dancing, or gesticulation, occasionally accompanied with confusion of mind, and an impediment of the speech; lastly, trembling cold, and febrile shivering and rigor. To these some add *tarantismus* *, which, as I have already observed (219.), more properly appears to be a very strong propensity to dancing, and is generally conjoined with some degree of mental derangement. To the second belong (241.) tetanus; emprosthotenos; opisthotonos; spasmus cynicus; risus sardonius; squinting; wry-neck; spasmus phryodes, or flatulentus, commonly called the *cramp*; satyriasis; priapism; and other spasms affecting some particular part, of which I shall speak in their proper places.

* Platner, *Art. Med.* § 644.

243. In *tetanus* the antagonist muscles of the

whole body are so contracted, that the patient becoming universally motionless and rigid, can bend himself in no direction, being as stiff as the trunk of a tree, the senses however remaining intire. But if only some parts be affected with such a degree of rigidity, the affection is then named *partial tetanus*, to which, in particular, belong *emprosthotenos*, *opisthotonos*, and other particular spasms. In *emprosthotenos* the muscles which bend the body forward become tense and rigid, and bend it in that direction*. Lastly, *opisthotonos* takes place when the body, for the opposite reason, is bent backwards†. Physicians assert that the body becomes spasmodically affected chiefly in these three ways, and deny that it can be bent otherwise. Morgagni‡, however, adduces an instance from Valsalva of a certain spasm by which the body was bent to one side||. Before Valsalva Fernelius observed some symptoms of it in a patient who every year in the winter-time was attacked with various spasms twice or thrice a-day§. In the paroxysm his head was first affected with a particular kind of shaking at intervals; after which the complaint gradually passed down the back of his neck, accompanied with a sense of cold. When at length it arrived between the scapulæ, his mind and senses still remaining uninjured, the body became affected with *opisthotonos*. But when it passed downwards to one or other side, or arm, or leg, the limb immediately be-

came so powerfully contracted, that the by-standers were incapable of extending it by employing any degree of force. De Haën, again, had an opportunity of observing a man labouring under tetanus, who was sometimes bent to the left side ¶ ; and also a woman, who, in consequence of a violent twist of the head, being seized with wry neck at intervals, was bent to the left side in such a manner as to resemble the letter C. He named this species of tetanus *pleurothotonos*, and, in opposition to the opinion of Mercurialis and Sorbait, rightly judged that it ought to be ranked in the fourth place. Others name it *lateral tetanus*.

* The head is bent forwards by the *sterno-mastoideus*, the *cleido-mastoideus*, the *rectus anticus major*, and the *rectus anticus minor*; the neck by the *longus colli*; the spine by the *psoas parvus*; the femur by the *psoas magnus* and *iliacus internus*. Of which one is placed on each side.

† The head is bent backwards by the *splenius capitis*, by the *biventer cervicis*, by the *complexus*, by the *trachelo-mastoideus*, by the *obliquus superior*, by the *rectus posticus major*, and the *rectus posticus minor*. These also are double. The neck is bent backwards by three pairs of muscles, namely, the *splenius colli*, the *spinalis cervicis*, and *interspinales cervicis*. The spine, again, is bent back by the *sacro-lumbalis*, or *lumbo-costalis*, by the *multifidus spinæ*, the *longissimus dorsi*, the *spinalis dorsi*, the *interspinales dorsi*, and the *interspinales lumborum*.

‡ *De Sed. et Causs. Morb.* Ep. x. n. 2. May not such an inflexion, on account of its having happened on the fifth day, when the patient died, be derived from the paralysis of the opposite?

|| The head is bent to a side by the *rectus lateralis*, the neck by the *anterior* and *posterior intercostals*, by the *scalemus quadruplex*, *anticus*, *posticus*, *tertius*, and *quartus*; the spine, by the *quadratus lumborum*, by the *intertransversales dorsi*, and *lumborum*, &c. Vid. Plenck, *Prim. Lin. Anat.*

§ *De Part. Morb. et Symp.* l.v. c. 3. p. 135. n. 30.

¶ *Rat. Med.* T. x. c. iv. p. 135.

244. The *spasmus cynicus* is a disease of the lips. For if, in consequence of the muscles of the face in one or both sides being contracted, they are drawn towards the ears, in some measure resembling the mouth of a snarling dog, they are said to be affected with the *cynical spasm*, or, as others call it, *distortion of the mouth*. The *risus sardonius*, in the opinion of some, does not seem to differ from the cynical spasm, since they consider it as consisting in the same distortion of the mouth; or, if they grant that any difference subsists between them, they affirm that it lies in the *risus sardonius* being also accompanied with delirium. It is a disease supposed to be occasioned by the herb *sardonia*, or apium risus, named also by some botanists *ranunculus sceleratus*. Be this as it may, I rather incline to the opinion of those who imagine that the *risus sardonius* takes place when the lower jaw, together with the muscles of the tongue and larynx, which are subservient to the voice, are convulsed and thrown into motions resembling a person laughing. It frequently happens, that in hysterical affections, which arise

from this cause, in concurrence with a spasmodic motion of the thorax and diaphragm, the most immoderate laughter takes place without the *sardonion* having been eaten.

245. *Strabismus* is that spasmodic inversion of the eye, in consequence of which the optical axis, as Sauvages affirms *, is forced to diverge. It arises when the muscles which move the eye are irregularly stretched, or any of them convulsed with violence. For the eye is drawn to that part which corresponds with the convulsed muscle. It is also that morbid direction of the eyes which is occasioned by the antagonist muscle prevailing, in consequence of any of the others having become paralytic; but this species of it belongs more properly to paralytic, than to spasmodic and convulsive diseases.

* *Nosol.* cl. iv. ord. i. gen. i.

246. *Obstipitas* is said to be present, when, in consequence of spasm of the neck, the head is rendered immovable, or is bent in a particular direction, in which it obstinately remains. The *spasmus phrygodes* is occasioned by the sudden, transient, and painful contraction of one or several muscles in some parts, happening chiefly in the hands and feet, or legs, accompanied with a most troublesome sensation. As in it the extensors or flexors are affected, the limb is either violently stretched or contracted. It has received its name from *flatus*, because the ancients supposed that it

was occasioned by it. Lastly, a rigid, obstinate, involuntary, troublesome, and painful erection of the penis, constitutes *satyriasis* and *priapism*. The former is accompanied with the venereal desire, and the latter, as I have already said, is without it.

247. To the spasmodic and convulsive motions (241.) may likewise be referred, *hysterical suffocation*, and the *globus hystericus*, or *hypochondriacus*, which in women and hypochondriacal men rises up to the throat; *hiccup*, *vomiting*, *cough*, *angina*, and *convulsive aphonia*; sometimes *asthma*, sometimes *palpitation* of the heart, sometimes *incubus*, or *ephialtes*, *trismus*, whether the grinding of the teeth, or the forcible drawing of the lower jaw towards the upper one *,—for I observe the word employed to denote both these symptoms,—clonic motions of the palpebræ and eyes, as *winking*, likewise yawning, stretching, and similar affections, which are generally symptoms of other diseases.

* This disease not unfrequently occurs in newly-born children and infants, and often proves fatal.

248. Therefore spasmodic and convulsive diseases ought to be divided into *universal* and *partial*, into *internal* and *external*, into *primary* and *secondary*, into *idiopathic*, *sympathetic*, and *symptomatic*, &c. But no one acquainted with the structure and functions of the human body will

deny that the internal as well as the external parts of the system are very frequently convulsed, in consequence of which innumerable affections, which were formerly ascribed to flatus, vapours, and the uterus, arise. Lastly, when the whole body is affected with *clonic* or *convulsive motions*, in such a manner that the senses and speech are not affected, *simple convulsions* are said to take place, which ought to be distinguished from true and perfect epilepsy, in which the whole body, to be sure, is convulsed, but the internal and external senses are intirely suspended, and cease, as will appear hereafter.

THE CAUSES.

249. THE proximate cause*, as it is called, of all these affections, is a violent and involuntary contraction either of the muscles of the whole body, or of particular parts, according as the intire body, or only certain parts, are affected, which it is highly probable is induced by a morbid degree of irritability of the system. This power in the clonic motions, either irregularly, or at intervals, impels each of the muscles, or the antagonist ones only, alternately to contract themselves; but in the tonic motions it incessantly forces all of them together, or the antagonist ones only, to contract. I must not, however, omit to notice, that it is

not always requisite that the irritability should be excessive ; but that it is sometimes sufficient that it be so diminished in the antagonist muscles, that those which are found surpass in strength and exertion the other ones in a state of languor and relaxation.

* According to Boerhaave and his followers, among whom a principal rank is held by Ant. Cocchi, a physician of great learning and celebrity (*Bagni di Pisa*, c. 4. p. 202.), the proximate cause of spasms and convulsions is made to consist in the irregular distribution of the nervous fluid, either from an organic injury of the brain itself, or from irritation propagated to it by the nerves, or in the abundance and morbid condition of the other fluids.

250. The *irritability* is increased, either by the will, or in consequence of the condition of the *sensorium commune*, which is required for the natural exercise of sense and motion, being deranged ; or in consequence of the circulation of the blood and other fluids through the vessels of the brain, nerves, or muscles, having become defective, or being rendered unequal ; or, lastly, in consequence of irritation communicated to the nerves or muscles. Whatever, therefore, can derange, vellicate, or in any other way injure the brain, nerves, or muscles, causing an involuntary motion or contraction of all or any of the parts, will prove also a remote cause of increased motion, and, therefore, of convulsions of any kind.

251. Of the remote causes, again, some are predisposing, others exciting. To the predisposing ones I refer, excessive natural or acquired irritability; very great sensibility; the sanguine and bilious temperament; a spare habit, and delicate state of all the fibres; a mal-conformation of the head; a peculiar hereditary tendency to nervous affections; violent affections of mind, and long-continued anxiety; excessive indulgence in venery, wine, and in the use of salt, acrid, and acid articles of diet. But these causes are so ordered that they may sometimes act, not only as predisposing, but also as exciting ones.

252. Under the head of the exciting causes chiefly fall, rage; terror; bad news; a taint of the hypochondres, uterus, and other abdominal viscera; pungent smells, poisonous halitus; acrid, or putrid humours, collected, effused, or stagnating within the skull or tube of the vetebræ, irritating the cerebrum, cerebellum, medulla oblongata, and medulla spinalis; and every thing which in particular can puncture, vellicate, press on, distract, or intimately derange the very sensible fibres of the medulla of the brain and nerves, or can accelerate, or retard, or irregularly promote the circulation of the blood, lymph, and nervous fluid, in the vessels of the brain, spinal marrow, ganglia, nerves, and muscular parts*.

* Haller (*Elem. Phys.* vol. iv. l. 10. sect. vii. § 27.) has remarked in point: "Doubtless, in consequence of the me-

dulla of the brain being somewhat deeply irritated, horrible convulsions are excited all over the body, as we have long remarked. We have quoted experiments; but diseases produce the same effects. Convulsions have been observed to arise on compression of the brain (Blancard, *Op. Chirurg.* p. 556.), and from its being wounded (Kaavw. n. 325.); from the ventricles of the brain being filled with water (Saviard. obs. 89. Apperley, obs. p. 1. 8. Bonet, *Prodrom. Anat. Pract.* c. 76. *De Convuls.* obs. 1. to 9. Bartholin. cent. iii. hist. 80. Rhod. cent. i. obs. 49. Harder. *Apiar.* obs. 33.), with scirrhus of the choroid plexus (Willis, p. 131. 114.), conjoined with repletion of the vessels of the membranes (*Id. Convuls.* p. 174. 175. Bonet, obs. 11. 12. 22. *addit.* obs. 1.); likewise alone (Forest, *De Sens. Intern.*); from hydrocephalus (Severin. *Chir. Effic.* P. 2. p. 125. Conring, *Herm. Med.* p. 12. Bartholin. hist. 80. cent. iii. Corvin. *Hern. Cereb.* p. 12.); from mere blood, but forced into the brain in too great quantity (Klockhof, *De Frig. Nerv. Inim. Mem. Pres.* T. iii. p. 452.); from grumous blood collected in the fourth ventricle (Turner, *Case of Surgery*, p. 42.); from pus in the brain (Willis, l. c. p. 52.) and its ventricles; from sanies and mucus in the ventricles (Bonet, l. c. obs. 13. 33.); from part of the brain being consumed (Arcæus, p. 50. Tulpius, l. iv. c. 1. Bonet, obs. 19. 21. Manochal, *Mem. de l'Acad. de Chir.* T. i. P. 2. p. 154. 155.), or having become scirrhus (Fanton. obs. 20.).

253. To these causes may be referred, an arthritic, rheumatic, scorbutic, venereal, atrabilarious, exanthematic, ulcerous, or any other similar matter and acrimony; most of the medicines prepared from poisons, as the preparations of hydrargyrus or antimony; the perspiration, sweat, the matter of itch, crusta lactea, tinea, herpes, impetigo, ulcers, issues, and other usual excretions striking in, being retained, or drying up; the seminal fluids

accumulating, and becoming acrid or corrupted ; pus, sanies, urine, and similar fluids, applied to the nerves, muscles, spinal marrow, or to the brain itself, in whatever manner that happens, whether by the vessels, or by the cellular membrane, or otherwise.

254. To these (252. 253.) are likewise to be added, long watching ; affections of whatever kind, inducing severe pain ; malignant, exanthematic, putrid fevers ; wounds ; punctures of the nerves ; the partial cutting of the sensible fibres, while those which remain intire are distracted and incapable of supporting the force and weight of the others without pain ; exostoses ; caries ; fractures of the bones ; splinters of the same ; hurtful bodies introduced into the system ; sudden and severe changes of the weather ; exposure to a sharp frost ; a sultry atmosphere, charged with foul, noxious vapours ; intoxication ; the eating of hurtful food, as that of some kinds of mushrooms ; plethora of every kind, inanition, and a great loss of fluids ; bad-conditioned fluids ; a hurtful colluvies in the *primæ viæ*, particularly in young people and infants ; bound belly ; the retention of the meconium ; the milk having become vitiated or acid by the nurse's food, or violent emotions of mind, or rendered acid in the stomach and intestines ; worms ; dentition ; the variolous, morbillous, and miliary miasma, that of scarlatina, or any other malig-

nant one. Not a few are of opinion, that the risus sardonius, and other convulsions of the face, arise principally from inflammation, or other injuries of the diaphragm. But it appears from the observations of Rahn *, that such spasms may be excited by morbid conditions of any other viscus which receives nerves from the intercostal pair *.

* *Comment. Lips.* vol. xviii. p. 554.

255. Hitherto I have been treating of the causes in common to all kinds of spasms and convulsions. I shall now enumerate those which more properly belong to tetanus, and its different varieties and degrees. Among these, as occurring most frequently, are enumerated, very keen frost; cold drink, taken by a person when warm; the sudden transition from a hot to a cold situation; sleeping in the open air, stretched on the ground, especially in a damp situation, after intoxication; acute fevers; wounds of the head; contortions and contusions of the neck; the puncturing or lacerating any nervous, tendinous, or muscular part; luxations and fractures of the bones; amputation of the limbs; the excessive use of wine after being wounded; ichor, sanies, or pus being retained after the drying up of wounds, or a cicatrix being too soon formed on them; abortion; an acrid ferous colluvies; dyspepsy; a number of large round worms, contained in the stomach and duodenum; wounds of the diaphragm, and the like causes *.

* All the species of tetanus are of common occurrence in the hot climates. The manifest causes in infants are generally reckoned to be, retention of the meconium, a gastric colluvies, and worms; in adults, the incautious cooling of one's self after having been thrown into a heat, but most frequently a small wound or puncture, in consequence of which a spasm is induced on the eleventh or fourteenth day after, the wound in the mean time in general having healed up. Hillary's *Observations on the Changes of the Air*. Lond. 1759.

256. Anatomy has discovered, that when the disease is primary and idiopathic, its principal seat is the brain and spinal marrow, but more frequently and certainly the latter. This was first discovered by Fernelius, and afterwards confirmed by several others. Lieutaud does not hesitate to suppose, that in spasms and convulsions, in which the senses and use of the tongue are retained, the spinal marrow is affected; and he affirms, that a watery fluid is generally found effused between its teguments*. Bilfinger holds the same opinion; nay, he supposes that the upper part of the spinal marrow is particularly affected; and whenever a morbid state of the brain has been discovered, he contends that it is propagated from thence into the spinal marrow†. In a man who, among other symptoms, during the last days of his life had been tormented with tonic convulsions of the superior extremities, which recurred at intervals, when the crown of the skull and the dura mater lying below were removed, some drops of effused blood above the pia mater,

under the crown of the head, near the left side of the longitudinal sinus, were discovered. The vessels dispersed over this membrane, investing the right hemisphere of the brain, were remarkably turgid and black. A quantity of water, almost limpid, was found stagnating in the convolutions of the whole brain. In the ventricles there was scarcely any, but a great quantity was found at the *foramen magnum*, from which it was evident that it could not pass down by that way into the tube of the spine, as in fact it immediately flowed out of it when the spine was dissected at the lower part of the thorax ‡. In the hospital of Bologna, an. 1752, a patient died of tetanus, with which he was attacked in perfect health. He had been of an excellent habit of body, but had fallen into the complaint in consequence of exposure to intense cold, in a state of intoxication. On dissection there was found, between the dura mater and pia mater, with which the medulla spinalis is surrounded, a great quantity of viscid, yellow serum ||. Zulatti § has given a very similar account of a case of tetanus, which attacked a baker, from nearly the same cause. In the ventricles, and almost intire spinal marrow, was found, a viscid, yellow, and somewhat acrid serum. On dissecting the body of a man who had died of opisthotonos, whose case has been recorded by Bontius ¶, the ventricles of the brain appeared filled with a viscid, glutinous, darkish-

coloured matter, very like the yolk of an egg, and not a little fetid. Valsalva also found a very small quantity of serum, which however was of a *salt* taste, in the left ventricle of the brain of a young man who had died of tetanus**. In others the vessels of the pia matter have been found turgid, and a fluid like jelly contained under it ††. Likewise the vessels of the pia mater above each posterior lobe, particularly the left one, were found so turgid with blood, in another body which was opened, that they appeared of a purple colour. Under the pia mater there was a collection of sluggish, whitish fluid, effused to a great extent about both lobes. In the occiput, at the base of the cerebellum, was found a spoonful of reddish serum, as De Haën tells us ‡‡. But in these last histories no mention is made of the spinal marrow. Had it been inspected, something would probably have been discovered in support of the histories already quoted. Lastly, according to Morgagni, in these cases we ought not to attend to the quantity of effused or stagnant fluid only, but also to its acrid and irritating nature.

* *Préc. de Med. Malad. Intern. de la Tét.* Livr. i. p. 215.

† *De Tetano lib. singular. Theroot. Pract.* p. 57. et seqq. Lindav. 1763. ‡ Morgagn. *Epist. Anat. Med.* x. n. 13. || Dall'Armi, *Sag. di Med. Prat.* P. ii. p. 92. § *Miscel. de Var. Litterat.* T. ii. p. 147. ¶ *De Med. Indor.* ** Mor-

gag. *Epist. Cit.* n. 2. †† *Ibid.* n. 9. ‡‡ *Rat. Med.* P. x. c. 3. p. 123. et seqq.

257. Like other convulsive diseases (248.), tetanus is either universal or partial. The universal species, again, is either *exquisite*, or *not exquisite*. The former, like acute diseases, attacks people suddenly and quickly, and soon finishes its course; the latter slowly, and by degrees. The first, therefore, is sudden, rapid, and very acute; the latter successive, habitual, and recurrent *. Both of them, whether universal or partial, exquisite or not, differ on account of the seat of their causes and origin. For it is sometimes *idiopathic*, sometimes *sympathic*; sometimes *protopathic*, or primary, sometimes *deutero-pathic*, or secondary, or *symptomatic*. Likewise the causes themselves constitute some varieties, which by some are considered as species, but which it will be better to omit, to avoid increasing their number unnecessarily †. It generally comes on, and continues without any fever; sometimes a fever supervenes, and often resolves it. Sometimes the fever precedes it; in consequence of which it cannot be considered as an inseparable symptom of the complaint. A more uniform symptom is, that in the parts affected with spasm a most excruciating pain, which comes by fits, as it were, is felt.

* Christ. Ludov. Bilfinger, l. c.

† In the *Rat. Med.* T. x. p. 115. of De Haën, there is a *Dissertation on Tetanus*. There, § vii. p. 182. some histories of tetanus are given; but they do not all seem to belong to tetanus.

nus. In the first of them, an account of locked-jaw proceeding from angina, is related. I doubt much whether the complaint was a case of true tetanus and convulsions. I doubt also whether the locked-jaw described in the *fourth history*, p. 189. proceeded from convulsions, or was rather an anchylosis occasioned by lues venerea, which was certainly present. In like manner I am doubtful, whether the immoveable jaw mentioned in the *fifth history*, p. 190. ought to be ascribed to spasm, as it may have been occasioned by the swelling and caries of the *antrum Highmorianum*, by which the temporal muscles and masseters might have been stretched and extended. That affection certainly was not tetanus, but a rheumatic and arthritic complaint, which is described in the *sixth history*, p. 192. For if, whenever a part is attacked with the rheumatic humour, attended with pain, stiffness, and immobility, we were to declare that it laboured under tetanus, tetanus, so far from being a rare complaint, would be one of daily occurrence (*a*).

(*a*) It cannot be denied, however, that sometimes tetanus, both in its phenomena, and in its termination and method of cure, bears such a resemblance to acute rheumatism, that it may be denominated *rheumatic*. This was lately shewn by Jo. Bapt. Marzar, an eminent physician, who has acquired a distinguished name by his medical writings, in a particular history, which is to be found in the New Medical Journal of Venice, vol. ii. N. v. p. 176. and well deserves being consulted, as containing some consequences not less new than necessary to be known in practice. He acknowledges, however, that tetanus generally belongs to the nervous affections, as is evidently collected from his epistle sent to me on the 12th of May 1785.

258. When tetanus comes on slowly, and as it were insidiously, it cannot be easily foreseen, unless a wound, or other causes from which it usually arises, precede its appearance. Generally, however, the approach of the disease is indicated by a dull pain in the head; dimness of the sight;

fainting-fits ; fyncope ; an uneasy sensation at the pit of the stomach, or under the ensiform cartilage, which is considered by some as a pathognomonic symptom ; tremors ; and alternate subfultus of the breast and abdomen. But it is a more certain symptom when some part becomes stiff, as the neck, jaw, &c. But when the disease at length commences, the whole body becomes so rigid, that it cannot by any means be bent, as I have already said (243.), the jaws become firmly locked, and the fauces are not only straitened, so as to cause a regurgitation by the nostrils of whatever is taken in, but likewise seem to become tense and hardened. The senses generally remain ; but when the disease is uncommonly severe they are sometimes overpowered. The body is cold, sometimes it is bedewed with a cold sweat ; the pulse is found to be small, slow, weak, and depressed ; it is sometimes accelerated, as in fever ; the respiration, particularly when the disease threatens a fatal termination, is anxious and difficult ; the eyes remaining fixed in the head ; the face is generally pale, but sometimes red, according to Hippocrates and Aretæus, and the urine is also suppressed, or at least flows more sparingly. But as soon as the patients begin to toss themselves about ; to complain of stupor, and the sensation called *formicatio*, in the limbs ; and to be sensible of itching, and lancinating pains in different parts ; it is a proof that the disease is about being resolved.

When the disease is at length resolved, dryness of the fauces, heat, moisture, and a particular sense of disorder in the abdomen *, succeed.

* Bilfing. l. c. p. 47.

259. Nor can this disease be confounded with catalepsy, paralysis, severe rheumatism, the congelation of the body by cold, anchylosis, and similar affections. For every body knows, that in catalepsy and paralysis the body may be easily bent as we please, and that it is by no means rigid, as in tetanus; which distinction will appear still more clear, if the description of both diseases (258.) be compared with the notes (243. 258.). In the severe rheumatism, again, the power of moving is not wanting, but the swelling of the parts, and the inflammation and very severe pain of the muscles or ligaments, prevent the patient from enjoying his usual freedom of motion. In anchylosis also, it is manifest that the motion is defective, not in consequence of the rigidity and spasm of the muscles involuntarily contracted, but from an actual morbid state of the joints. But every person must be able to distinguish between the body's being frozen with cold, and affected with tetanus. The extreme coldness of the body, the defective respiration and pulsation, and the deep sleep and numbness, together with the circumstance that the limbs, when bent with violence, do not recover their former situation, and the preceding causes, sufficiently demon-

strate that the body is in a state of congelation. We must take care also not to confound with tetanus, or locked-jaw, the *trismus rheumaticus* occasioned by an accumulation of the rheumatic matter about the muscles and articulation of the lower jaw, or with the locked-jaw proceeding from a swelling of the parotids, or from the inflammation of synanche, or with the *trismus ulcerosus*, or *anchyloticus*, occasioned by ulcers of the mouth and fauces, by cicatrices and abscesses, or by the growing together of the cheeks or jaws at the angles of the mouth, or by ankylosis, or any other manifest cause. For in each of these affections the examination of the mouth, and softness of the muscles moving the jaws, make the diagnosis evident *.

* I should recommend the perusal of a very complete treatise on tetanus, executed with incredible labour, entitled, *Wenceslai Trnka de Krzowitz, S. R. I. Equit. in Regia Universitate Tyrnaviensi Anatomæ Professoris Pub. et Ordinarii Commentarius de Tetano plus quam ducentis clarissimorum medicorum observationibus, necnon omnibus hætenus cognitis adversus Tetanum remediis instructus*. Vindob. 1777. in 8vo, p. 465. For in it will be found collected all that has been written on the subject, both by the ancients and moderns.

260. As the remaining diagnostic marks, both of the *tonic* and *clonic* affections, appear from the preceding chapters, there is no occasion for repeating them here. I shall only add, that such persons as are affected with convulsive diseases in

general are sometimes pale, sometimes red, sometimes very warm, at other times cold, and occasionally bedewed with sweat; that their urine is sometimes suppressed, sometimes more copious than usual, voided frequently, and thin; that the belly is at one time obstinately bound, at other times unusually loose. Lastly, it remains for us to distinguish the convulsive motions from *tremor*. The latter accompanies every voluntary motion; the former motions, again, generally take place while the patient is unconscious of them. For trembling, although it may be considered as a degree of convulsion, proceeds from weakness of the moving power, and the irregular action of the nerves upon the muscles, the power of voluntary motion still remaining entire. But in actual convulsions voluntary motion is wanting, though not as in paralysis, in which the paralyzed limb, destitute of motion, may be drawn or bent in any direction; in convulsions, again, because it is tense or contracted, that cannot be done without violence and excruciating pain.

OF EPILEPSY.

261. As I have already classed Epilepsy among the convulsive diseases (242.), and undertaken to describe it more fully, I shall accordingly fulfil my promise in this place, and give as brief a

view as possible of its nature, causes, and symptoms, as being a disease of frequent occurrence, and often proving exceedingly troublesome. Those persons, therefore, who are attacked with this complaint, suddenly fall down, and begin to shake all over, intirely deprived of sense; insomuch that epilepsy, properly so called, may be defined to be *the sudden interruption of all the senses, both internal and external, accompanied with a violent alternate contraction and relaxation of almost all the muscles of voluntary motion, and continuing for a longer or shorter period; until the person so affected returns to his former health and strength, perfectly unconscious of what has passed.* Such is the genuine and perfect epilepsy, or, as others name it, *morbus sacer, herculeus, divinus, lunaticus, comitialis, caducus, and puerilis* *. At present, however, the name is only given to that affection which returns at intervals, and is really chronic; for when the complaint is recent, transient, and does not return again, the name of *eclampsia* is given it in preference; of which kind, in particular, is that into which children fall in consequence of dentition, or the retention of the *meconium*, or of the variolous or morbillous miasma, to which, however, on the cause being removed, they are no longer liable.

* It was also named *ἐπιληψία* by Aristotle and Hippocrates, signifying, as it were, *comprehensio*, or *correptio*, a seizing. For

the ancients believed that epileptic patients were seized by some devil, and dreadfully shaken. They likewise named it *morbus sacer*, from supposing that it was to be removed by nothing but divine aid ; or because it occupied the seat of the soul ; or because it was the custom of the Greeks to denominate every thing great *sacer*. For in their language *sacrum* is often put for *magnum*. Hence *sacra nox, ancora sacra*, occurring in Homer. Besides, *sacer* is synonymous with *execrable*, as in Virgil, *Auri sacra fames quid non mortalia ?* &c. Celsus, however, employs *sacer* and *major morbus* in the same sense. It is likewise named *Herculeus*, either because Hercules laboured under it, or because it has generally been found to prove incurable by art. Aristotle, too, gave it this name. Plato has named it *divinus*, from the supposition that the divine part of the mind is affected in it. Moreover, it is named *lunaticus*, for many reasons ; chiefly, however, 1. because persons born during the change of the moon have frequently been observed to be liable to it ; 2. because it is supposed to follow the change of the moon ; 3. because it was supposed to be inflicted by the moon upon wicked men, by way of punishment. But, passing over the superstitious notions of the ancients, so great always has the persuasion of mankind been concerning the influence of the moon upon this disease, that Riverius (*De Epileps.*) has written, that idiopathic epilepsy attacks people during the conjunction of the sun and moon ; nor has Meade (*De Imper. Sol et Lun.*) hesitated, not only to defend the opinion of the ancients, but has also adduced observations to demonstrate that it repeats its accessions during the increase of the moon, and chiefly at its height. Again, it has been named *comitialis*, because, whenever a person, in consequence of being struck with it in the popular assemblies, which was very apt to happen in a crowded meeting, the *comitia* were interrupted on account of a religious scruple. Lastly, it has been named *caducus*, from its being attended with falling ; and *puerilis*, on account of its occurring chiefly in children.

262. Nearly the same symptoms which precede apoplexy announce the approach of epilepsy, namely, heaviness of the head and vertigo ; tinnitus aurium ; *muscæ volitantes* ; slowness, or difficulty of speech ; profound sleep, or unusual watching ; alarming dreams ; unusual grief ; irascibility ; forgetfulness ; torpor ; numbness ; trembling ; sneezing ; a copious flow of saliva ; nausea : or, on the other hand, hunger, and keen appetite ; the perception of a disagreeable or unusual smell ; straitening of the breast, throat, and belly ; a spasmodic affection of some muscle ; pain of the scapulæ ; palpitation of the heart ; oppression ; straitness ; and watery and crude urine. Some, a little before the accession of the disease, are seized with a pain or cramp in some part, or the sensation of a cold *aura* rising upwards. By these symptoms, the approach of the accession is frequently felt ; sometimes, however, it comes on without being preceded by any symptom, suddenly and secretly.

263. But when the paroxysm at length commences, the patient then on a sudden falls down, deprived of his senses. He is shaken with clonic convulsions ; sometimes he becomes immovable, and is again convulsed ; his face becomes red, or pale, or livid, and swelled ; he thrusts out his tongue, which is often severely bitten ; and in violent cases the excrements, urine, and

semen are unconsciously ejected *. The pulse, which is generally strong, great, and frequent, comes and goes by turns ; the eyes are sometimes open, and remain fixed, at other times they roll about surprisngly, and continue to do so even after the paroxysm has ceased. In some people a hissing noise and snoring are excited ; in others hiccup or vomiting come on ; in most instances the patients foam at the mouth and nostrils, particularly towards the end of the accession, and sweat flows from the head, neck, or even from the whole body. Sometimes surprisng motions and gesticulations of the limbs take place ; and in other cases, at the commencement of the fit, the patient shrieks or roars out, or utters some incoherent and inarticulate words. Sometimes so great is the agitation and convulsion of the limbs, that even those of strong full-grown men are thrown off joint †. I once observed the lower jaw of a young woman of rank so stretched and displaced, that at the end of the paroxysm she could not close her mouth until a surgeon had replaced the jaw. I attended another young lady of quality, the head of whose left humerus, whenever she was seized with epilepsy,—which happened almost every month,—slipped down into the cavity of the axilla. After this horrid conflict ceases, which in some cases happens in a few minutes, in others after a longer time, nay, in some, not until after several hours ‡,

the limbs become relaxed, and their motion subsides; the eyes appear dull and heavy; the veins of the forehead, temples, face, and neck, do not immediately fall; the mind remains stupid and torpid; the lips are black and livid; the tongue bleeds; the senses and voluntary motions return slowly; but the patient retains no remembrance of any thing that is past. Those who return to themselves in this manner only complain of a pain in the head, breast, and limbs.

* Duretus supposed that in epilepsy the muscles of voluntary motion are contracted, and that those of involuntary motion become relaxed. But Van Swieten denies that the excrements are passed in consequence of the relaxation of the sphincter, being of opinion that this takes place on account of the very violent action of the diaphragm and abdominal muscles overcoming the resistance of the sphincter, and thus forcing out the excrements. They do not in fact pass out gradually, but are exploded with great violence. *Comment. in Boerhaav.* § 1077.

† Van Swieten; *ib.* § 818.

‡ I saw a young clergyman, of a delicate habit of body, who had been attacked with a most terrible epilepsy in consequence of great anxiety of mind. For nearly twenty hours, during which he remained deprived of all his senses, he experienced the most dreadful clonic convulsions, which succeeded each other without any complete intermission. They were at length allayed by the repeated opening of the jugular veins.

264. Hitherto I have been describing, not only true and perfect epilepsy, but also the severe and

most common kind. For that which takes place with a clonic motion of only some parts, or in which all the senses are not overwhelmed, or at least not intirely, I grant, is to be denominated *epilepsy*, but it is of the slight and imperfect kind. There are, moreover, certain degrees of approximation to it, in which the senses are scarcely at all interrupted, or only for a moment, and scarcely any convulsive motion, or only a very slight one, takes place, the patients not falling on the ground, but continuing to stand. These I should rather name *epileptic attacks*, than actual epilepsy. But if they are neglected, a transition, first to slight epilepsy, and next to that which is severe and perfect, in general gradually takes place. I likewise observe that authors relate some very rare cases, and assign them to this species of disease, while not a few of them appear to me to be referable to somnambulism, or extacy, or anæsthesia, or hysteria, or to the complicated nervous affections. If, therefore, I omit them, let me not be accused of negligence; particularly as unusual and remarkable instances of this kind will be found in abundance by any one who is desirous of searching for them in the works of authors who are curious in collecting such cases.

265. With regard to the causes, they are such as I have already enumerated in general as being in common to the convulsive diseases (249. *et seq.*). According to the different seats which the disease oc-

cupies, a distinction of particular consequence arises, namely, that of the *idiopathic*, *sympathetic*, and *symptomatic* epilepsy. In the idiopathic species the seat of the cause is the head itself. In the bodies of those who have died of this species, the brain has frequently been found callous, or flaccid, or corrupted, or an effusion of serum has been discovered in the ventricles, or little bones have been observed growing in the membranes, or exostoses, soft tumours, caries, and the like have been noticed in the skull. Sometimes, however, as Morgagni informs us, no manifest injury has been observed. The species of epilepsy, the cause of which is contained in the head, is known by particular marks. It generally attacks the patient without any previous warning, and almost always succeeds to symptoms of derangement of the brain, while the other parts are in a sound condition: the symptoms are, chronic headach, frequent vertigo, and dulness of the senses and intellectual faculty, or they are the sequels of it. Those causes also precede which immediately affect the brain, particularly terror, a metastasis, an hereditary taint, blows, and wounds. On the other hand, in the sympathetic species, while the brain is perfectly sound, a morbid condition of some distant part takes place, in consequence of which the patients are generally apprised of its approach. Hence various distinctions are laid down by au-

thors, according to the different seats of the origin of the complaint. Sometimes the stomach, sometimes the intestines, or hypochondres; at other times the uterus, or toes, or fingers, or extremities, and other parts, contain the cause of the complaint. The knowledge of which causes, although it be very necessary to the physician, does not increase the number of the species. But I have no objection to derive the names from the parts and causes, in order to make the distinction of the disease still more clear. Hence it may be named *stomachica*, *melancholica*, *atrabilaria*, *verminosa*, *hysterica*, and so forth.

266. If the disease proceeds from the stomach or hypochondres, there are present symptoms of indigestion, namely, acid, strong smelling, rancid eructations, flatus, borborygmi, a bad taste of the mouth, nausea, injuries of the functions of the abdominal viscera, anxiety after taking food, and an aggravation of all the symptoms; but when the stomach is empty, frequently a gnawing sensation in it, cardialgia, and pains are felt. Authors of great reputation mention that it has sometimes proceeded from the liver, particularly from stones in it*. When this is the case, it is preceded by hepatalgia, or icteric colic, obstinate icterus, apt to return, and the other symptoms of stones in the gall-bladder, of which we shall hereafter make mention. If it proceeds from the uterus, hysteria, fluor albus,

hystericalgia, swelling and obstruction of the ovaria, diminished or vitiated excretions, hemorrhages, and the like, occur. If it proceeds from worms, among other symptoms, itching of the nose, paleness of the face, sneezing, flushing of the face, mydriasis, alarms during sleep, fainting without any manifest cause, ash-coloured, argillaceous, or mucous stools, gripes, colic-pains, a tympanitic swelling of the belly, and principally the voiding of lumbrici, tæniæ, gourd-worms, or ascarides, are observed. In the species of the complaint proceeding from acid or coagulated milk in the stomach or intestines of infants, green stools, or such as shortly become so, emitting an acid smell, vomiting, and diarrhœa occur. When it proceeds from the meconium, being passed with difficulty, or retained, flatulency, crying, swelling of the belly, and costiveness take place. When it proceeds from difficult dentition, the time and age when it occurs, the heat, swelling, and pain of the gums, the ptyalism, restlessness, heaviness of the head, redness of the cheeks, thirst, and occasional fever, indicate it. When it proceeds from any particular part, as from the fingers, feet, legs, or hands, the sense of pain, spasm, and contraction in it, or the ascent of the cold *aura*, or any other preceding perception of uneasiness from which the disease may seem to originate, denote its presence. But the distinctions of the symptomatic epilepsies are

taken from the diseases of which epilepsy is a symptom. The principal ones are, the *febrilis*, *exanthematica*, *sypbilitica*, *traumatica*, *cachectica*, *melancholica*, and so forth; according as they proceed from fever, exanthematous diseases, lues venerea, wounds, cachexy, melancholy, and other diseases. Lastly, the diagnosis of the remaining causes (251. to 255.) will appear from the attentive consideration of the symptoms preceding, accompanying, and succeeding the complaint. Nor must these observations be understood as applying only to epilepsy and its origin, but likewise to every spasmodic or convulsive affection already mentioned.

* Baumè adduces an instance from the *Journ. de Med.* T. lvii. p. 320. by which he endeavours to prove that a woman died of epilepsy proceeding from this cause. But although she was labouring under icterus, and probably had calculi in the gall-bladder, it does not, however, appear sufficiently that it was a case of sympathetic epilepsy, as the idiopathic causes were not wanting. Another instance of the same kind of epilepsy is mentioned in this Journal (for July, p. 504.), where it is said, that a pain in the right side of the epigastrium, and all over the arm and knee of the same side, was present. Hoffman makes a remark similar to this (*De Epileps.* obs. 3.). Fabrici (*Act. Phys.* T. x. obs. 36.), in the body of a person who had died of epilepsy, from the same cause, found the gall-bladder full of inflammable calculi, and the vena porta turgid with black blood, but no serous fluid was effused in the brain; the substance of the brain itself was dry and compact, and the vessels completely destitute of blood.

THE PROGNOSIS.

267. IN the same manner as in every other disease, in the convulsive affections, the prognosis is chiefly to be collected from a knowledge of the cause and duration of the complaint. I shall collect their prognostic symptoms together, to avoid proving tedious, by repeating under their several heads those symptoms which are in common to many of them. In general these diseases ought never to be considered as free of danger. The idiopathic species are considered as being more severe and difficult of cure than the sympathetic. The sympathetic species, again, if they continue long, or frequently recur, gradually pass into idiopathic ones. The more violent and continued the spasm is, and the greater the number and importance of the parts affected are, and the more the vital functions are affected, the greater reason for apprehension is there.

268. The convulsions which happen in acute, exanthematic, and inflammatory fevers, during their increase, or at their height, especially when they occur after watching, delirium, or deep sleep, are extremely dangerous. For they are occasioned by the morbid matter, still undigested and not sufficiently prepared for excretion, being forced into the brain and nerves. The author of the *Coacæ*

Prænotiones * observes: "When convulsions succeed to fever, they announce danger; but this is not the case in children." And again †, "Convulsions, together with the pains of the hands and feet, occurring in fever, afford an unfavourable prognostic mark." Which Hippocrates also hints, when he observes ‡: "Convulsions and violent pains in the viscera, occurring in acute fevers, are bad." Sometimes, however, on concoction taking place, and the matter becoming fit for being evacuated, if convulsions occur, they promote its excretion, and resolve the disease. But in that case the convulsions, as is noticed in the *Coacæ Prænotiones* ||, are of short continuance, ceasing upon the same day. Those convulsions are generally of the same kind which precede the eruption of small-pox or measles; likewise great danger is threatened by convulsions succeeding to great loss of blood, or the iliac passion, watching, or excessive purging. The student may consult aphorism 2. 3. and 45. of section v. and aphorism 9. 10. 18. 25. of section vii. of Hippocrates: as also in the *Coacæ Prænotiones*, number 565. where convulsions proceeding from pure vomiting are pronounced to be dangerous. We must not, however, lose all hope in the convulsions which proceed from employing a drastic cathartic, although Hippocrates has pronounced them to be fatal: for paretics, opiates, and theriacal remedies sometimes allay them. Lastly,

those convulsions which come on in consequence of a wound, ulcer, or abscess, about the brain or principal nerves, denote certain death.

* N. 356. 357. † N. 3. ‡ Aph. 66. sect. iv. || N. 15.

269. Hippocrates has observed: "Those who are seized with tetanus, are carried off generally within four days. But if they survive this period, they recover *." The same author, however, as Van Swieten remarks, has elsewhere pronounced the duration of the disease to be greater. In fact, instances are recorded of tetanus having been protracted for twenty or thirty days without having been cured. That one which Vallisner cured, was extended to the length of a year. But several instances of tetanus are mentioned which were more pro-rheumatic and arthritic, than tetanic affections. "Convulsions or tetanus, accompanied with violent heat, are bad †. Convulsions or tetanus are resolved in consequence of fever supervening ‡. An opisthotonos, if a fever supervenes, is resolved by the voiding of urine like semen ||. If the jaws become relaxed in tetanus, it is a fatal symptom §." The truth of this prognosis has been frequently proved by experience. In support of this, the reader may consult the histories of tetanus, which have been given by De Haën ¶, in which this symptom, when it appeared, uniformly proved fatal: "It is a more favourable symptom when fever

supervenes in convulsions, than when convulsions supervene in fever **. Persons labouring under quartan fever, are not very liable to convulsions; but when a quartan supervenes in convulsions, the patients are restored to health ††. Convulsions are resolved by the catamenia, if they appear about the beginning of the complaint, and at the same time fever does not come on ‡‡.” Sand being mixed with urine, and adhering to the sides of the pot ||||, not only in convulsions, but in almost all diseases, by general consent affords a favourable prognostic. I knew a married woman, who was very liable to convulsive affections, and always received great relief from the passing of somewhat turbid and palish urine.

* Aph. 6. sect. iv. † Hippocrat. aph. 13. sect. vii.
 ‡ Id. aph. 57. sect. iv. || Coac. N. 362. § Ib. N. 361.
 ¶ L. c. ** Hippocrat. aph. 26. sect. ii. †† Id.
 aph. 70. sect. v. ‡‡ Coac. N. 531.

|||| I cannot here omit a passage of Morgagni relating to this kind of sand in the urine, which deserves being transcribed intirely. For, after mentioning the observation of Joubert and Grad, concerning the gravel passed by patients towards the end of a fever, or after long continued fevers, and pointing out in what manner it is to be distinguished from that which is passed by gravelly patients,—for, on being rubbed between the fingers, it easily crumbles, which does not happen with regard to the gravel passed in calculus,—he adds; “ Moreover, not only in fevers, whether vernal, summer, autumnal, or winter ones, whether intermitting, continued, or benign, or accompanied with petechiæ, or of an intermediate kind,

or very slight, of long or short continuance, whether occurring in children, young people, or in men, or in women, and that too occasionally during pregnancy, or such as have arisen from the more frequent causes, or sometimes from particular ones, as the swallowing of a corrosive poison, but also in several other diseases unaccompanied with fever, and particularly in severe headaches, and apoplectic affections, sometimes also in those occurring in old age, I have observed, that whenever this gravel was passed, very frequently the fever or disease had either terminated, or was fast approaching to its termination; though I have not unfrequently observed it when the disease either had not begun to take a turn, or, if it had, when it proceeded but obscurely, so as still to leave the event doubtful. But as at the termination of the disease, or when the turn to a certainty has taken place, and daily becomes more manifest, the passing of this gravel decides the victory of nature; so before the beginning of the turn, or when it is still doubtful, it generally portends a successful termination: for the disease either entirely ceases, or, if it returns, it proves much slighter and of shorter continuance. Once only, as I have elsewhere observed, a dropsy, which had arisen after a fever, on being discussed, was succeeded by other severe diseases, of considerable duration, from which, however, the patient recovered. I have known of merely one instance of a patient's death proceeding from a malignant autumnal fever, which I never had an opportunity of observing either before or after that day; so that I am at a loss to know whether the fever, or any error afterwards committed by the patient, or assistants, or physician, occasioned his death; nor can I say whether the gravel was present during the whole course of the disease, or appeared for the first time on that day. Nor do I speak of the gravel which always appears, but only of that which begins to shew itself at the height of the disease, which is now drawing to a turn, or after the latter has actually begun, adhering, as Grad observes, to the surface of the *pot*; not of the *urine*, as is said in the *Sepulchretum*, where not even the book in which the

observation has been made is pointed out. If the urine is inspected in a clear light, very fine sand will be observed adhering to the sides of the glass-vessel in which it is contained, sometimes also floating on the surface of the urine, generally brownish, very seldom whitish, such as I remember to have observed in a young man, labouring under a malignant fever accompanied with petechiæ, when the fever had taken a turn."

De Sed.e t Caus. Morb. Epist. 49. art. 21.

270. Hereditary epilepsy, or that which arises in the foetus, in consequence of the mother's being alarmed during pregnancy, or which proceeds from a mal-conformation, and other causes which cannot be removed, is scarcely ever cured. The complaint is generally of long continuance, and the more violent and frequent its paroxysms are, the more dangerous is it; for it is apt to pass into a fatal apoplexy. Sometimes a single violent paroxysm cuts off the patient. This generally happens, when, after several accessions have been overcome, an uncommonly severe one comes on, which at length proves fatal. If, therefore, the person seized with a fit does not return to himself after some hours, and still more if the convulsions are repeated after intervals, and sensation is intirely suspended, certain death may be expected. That which is recent, and in which the paroxysms, although frequent, are of shorter continuance, is more easily cured, than one of longer standing. Hippocrates, therefore, has justly observed, "When the complaint has got to a head, it becomes in-

curable *. Likewise that species of epilepsy which arises from water between the skin, occasions death, as we learn from the *Coacæ Prænotiones* †. That also which attacks newly-born children in general proves fatal. It is very difficultly removed in old people. A violent attack of epilepsy during pregnancy frequently occasions abortion. That which succeeds to phrenitis, or mania, or melancholia, is generally incurable, because polypous vitiations, or other concretions in the brain, have been observed to occasion it, as appears from dissection ‡. Hippocrates has left us many prognostics concerning epilepsy. He observes: “Epilepsy, when it happens before puberty, admits of cure, but after the twenty-fifth year of one’s age, it generally sticks by a person during life ||.” He has said *generally*, because even of these patients some are cured. He makes similar observations elsewhere, when he observes: “Those persons in whom epilepsy happens before the age of puberty, undergo a change in the course of their life ||.” He confirms this opinion in another passage, where he adds: “Epileptic children are freed from the complaint, principally by advancing in life, and by a change of climate and manner of living ¶.” That happens chiefly about the period of puberty, when the body becomes stronger, unless the complaint proceeds from sharp points

sticking out from the inner surface of the skull, or caries of the bones of the head, or effused humours, or scirrhus tumours of the brain, and other incurable complaints, but particularly if the disease depends upon a strumous state of the brain **. But Hippocrates has nowhere explained himself more clearly and distinctly than in the second book of his prognostics ††, of which these are the words : “ Moreover, of such as are seized with epilepsy, those persons are most difficultly cured, in whom the disease has continued from infancy to manhood ; next those in whom it occurs at their prime, continuing from the twenty-fifth to the forty-fifth year of their age. And next in order come those persons in whom the disease takes place, without giving any indication from what part of the body it originates. That species of epilepsy which seems to originate from the head or side, hand or foot, is more easily cured. But even these species of the disease differ from one another in this respect. For those which arise from the head, are most severe ; next come such as proceed from the side. Those proceeding from the hands and feet most readily admit of a cure.” Hence the prognosis varies, according to the duration of the disease, and the variety of the patient’s age, and it moreover appears, that the most difficultly curable of all the species of epilepsy is that which attacks the patient without

any preceding symptom, as also the idiopathic species; while that one is less difficultly cured which is occasioned by sympathy. For this last frequently yields to the employment of a proper method of cure. It appears also from experience that the symptomatic species, if the primary disease admits of a cure, may be removed. The complaint frequently terminates in consequence of paralysis, abscess, scabies, or quartan fever supervening. That species of epilepsy which disappears in the prime of life, according to Aretæus, sometimes occasions deformity, either depriving the patient of the use of his hand, or producing distortion of the face, or extinguishing some of the senses. But we must not be too ready to suppose that the disease has been overcome in consequence of the paroxysms not returning at the usual period; for the nature of the complaint is very fallacious and anomalous. We have reason to expect that the disease will not return any more, only when the patient is at length no longer subject to the attacks of the complaint, sleeps well, has a good appetite, is alert in body and mind, acquires a good habit of body, and is regular in his belly. On the other hand, there is reason to dread a fatal termination if the disease does not cease to recur, leaving a very short interval between the attacks, and being attended with paroxysms of great du-

ration, succeeded by deep and long continued sleep, from which the patient cannot be roused ††.

* *De Morbo Sacro*, xiii. 15. † N. 459. ‡ Felici, *Diff. del Prasag. Med.* p. 155. || Aph. 15. sect. vii. § Aph. 7. sect. v. ¶ Aph. 45. sect. ii. ** Ruffel, *Oeconom. Nat. in Morb. Acut. et Chron. Glandul.* Lond. 1755, p. 96.; and *Comm. Lipsf.* vol. v. p. 472. †† N. 16. ‡‡ Andr. Piquer, *Prax. Med.* P. i. l. i. c. ix. p. 113.

THE CURE.

271. IN the treatment of every disease, and consequently of every species of convulsion and spasm, it is necessary to look to the causes (249. *et seq.*). Hence when plethora is present, it ought immediately to be removed by bleeding. In the case of a ferous colluvies we must have recourse to hydragogues, diuretics, diaphoretics, sialagogues, blisters, epispastics, and other kinds of evacuations. Gorter and Van Swieten particularly recommend diuretics, especially when the disease has been occasioned by the retention and absorption of the urine. Among these there are some which possess likewise an antispasmodic property, as white amber, its volatile salt, the succinated liquor of hartshorn, millipedes, earth worms, cochineal, *sp. nit. dulcis*, the ferulaceous gums. And these may be also employed, when sluggish and thick humours, attended with laxity and a-

tony of the solids, occasion or keep up the disease. Inanition from hemorrhages, or excessive purging, or other evacuations pushed too far, requires analeptic, restorative, nourishing, cordial, and paregoric remedies. If excessive sensibility, or irritability, or severe pains, or excessive watching, have occasioned the complaint, anodyne remedies of every kind, and particularly opium, prove serviceable. These remedies are proper also when the complaint has arisen from fear, anger, or a deranged state of the nerves. Sometimes relief is obtained from bleeding, the *liq. anod. min.* of Hoffman, vitriolic æther, the antiepileptic spirit of Pezoldt, musk, camphor, castor, assafoetida, the emulsions of the cold seeds, and of white poppy, the *syrupus de meconio* of Sydenham, oily, mucilaginous things, the hot bath, emollient injections, and the like. The fossil acids are said to diminish sensibility and irritability, and therefore are considered as proper here, particularly when sweetened and corrected with spirits of wine.

272. Poisons taken into the system, and among these, the poisonous plants, as cicuta, belladonna, water hemlock, coriaria, and deleterious mushrooms, are sheathed by the employment of oil, butter, milk, hydromel, and oxycratum, by which means their action is blunted and corrected, and they are at length expelled by emetics, cathartics,

and clysters. Such is the power of oily remedies in allaying spasms and convulsions, that Albertini, an eminent practitioner in Bologna *, has removed those that were occasioned by the swallowing of poisons, by employing a bath of tepid oil. But even those which arise from an internal cause are often wonderfully relieved by the internal employment of oil. Morgagni mentions that Vallisner cured a nobleman who had been subject to convulsions for a year, by giving for a long time two ounces of oil every evening, in place of supper †. Worms, a colluvies in the *primæ viæ*, and the meconium, are expelled by means of anthelmintics and oily remedies, cathartics, and saponaceous things, condensed cow's-gall, honey, and injections. Acid crudity, and coagulated milk, are removed by antacids, absorbents, Venice soap, bitters, rhubarb, and its syrup. The irritation occasioned by injuries of the cranium and head is removed by the perforation of the skull and other operations, which is serviceable also in the species of the disease situate elsewhere, if the complaint proceeds from consent with these parts. For when a nerve is punctured, half-cut, or in any other way lacerated, it ought to be divided; the narrow wound ought to be enlarged; the fragments of the bones ought to be removed, and the communication and consent with the part ought to be interrupted by li-

gatures, and the pain alleviated by proper remedies.

* Morgagn. *De Sed. et Caus.* ep. x. n. 21. † *Ibid.*

273. The convulsions which generally occur in the eighth, ninth, and tenth month of infancy, accompanied with swelling, pain, and redness of the gums, fever, spitting, diarrhœa, according to Sydenham*, are allayed by nothing more quickly and efficaciously than by bleeding. With the same view he proposes a few drops of the spirit of hartshorn, diluted in some cephalic water, and sweetened with a proper syrup. Scardoni prefers the succinated liquor of hartshorn, affirming to have frequently obtained surprising advantage from its employment †. I myself have occasionally employed both remedies with advantage. In the mean time the gums ought to be relaxed as much as possible by means of gentle friction, an anodyne liniment, syrup of althæa, mucilage of the seeds of flea-wort, and, lastly, if the tension and pain be great, they may be lanced, in order to promote the cutting of the tooth. For allaying the pain and spasm, a small spoonful of the syrup of diacodium, given at intervals, is found to be serviceable.

* *Oper.* sect. iv. c. v. † *De Cogn. et Cur. Morb.* l. i. p. 167.

274. When the convulsions precede the eruption of small-pox, measles, or the scarlet-fever, if they do not quickly cease, they must be treated

by immediately applying an epispastic to the back of the neck, and giving internally a spoonful of the epidemic water, with five drops of laudanum, as Sydenham* and Meade† advise. And if at the same time plethora be present, it does not appear to be improper to let blood, and to employ the tepid bath and fomentations. Some practitioners recommend, as a good remedy for the convulsions with which sucking children are affected, a mixture consisting of an ounce of the water of black-cherries, five drops of the spirit of hartshorn, ten grains of the *requies Nicolai*, and two drachms of syrup of violets taken occasionally by spoonfuls. Nor do infants and children only, but also women during parturition, when labouring under convulsions, claim our attention. For these last, during the violent pains and throws of parturition, in consequence of a congestion of blood in the brain taking place, are occasionally attacked with the most dreadful convulsions. In that case, volatile remedies, spirits, and heating antispasmodic remedies, ought to be avoided with the utmost caution. Our attention, however, ought to be turned to delivering them of the foetus with all manner of dispatch. Repeated bleeding also frequently allays convulsions, and accelerates parturition‡. If that does not prove of sufficient service, the foetus ought to be extracted by the hand.

* *Dissert. Epist.* † Meade, *Oper.* p. 43. ‡ Mauriceau, T. i. l. 2. c. 28. Smellie, *Reflect. on Slow and Painful Labours*, &c. p. 60. *et. seqq.*

275. Likewise morbid states, and peculiar acrimonies of the blood, by which the disease is either excited, or kept up, are to be corrected, derived, and evacuated by the proper remedies, namely, by diluents, attenuants, demulcents, sweaters, diaphoretics, antacids, and alkaline, antiscorbutic, and antivenereal means, as also by means of the bath, friction, issues, epispastics, and those things which gently promote all the excretions. Among the alteratives are particularly recommended, the juices of succory, taraxicum, fumatory, baum, brook-lime, nose-smart, or decoctions or infusions of these; whey, milk; the soup of frogs, eels, vipers, and water-gruel; medicated waters; crude antimony; æthiops mineral; mercury; and similar remedies, the selection and employment of which are cautiously to be accommodated to the various causes and indications. The venereal stimulus, and quantity of semen, from which convulsions occasionally proceed, are diminished, checked, and prevented by bleeding, spare and cooling diet, abstinence, the drinking of water, antiphlogistic and acescent remedies, nitre, cassia, manna, tamarinds, crystals of tartar, the seeds of melons, hemp, and *agnus castus*, the leaves of the water-lilly, and marriage. To these some

add camphor, but improperly; for it seems rather to have a tendency to rouse than to allay the venereal desire. On the other hand, if the complaint proceeds from excessive venery, or drinking too much wine, or mental affections of long continuance, continence, abstinence from wine, the cold bath, peruvian bark, cascarilla, steel, travelling, riding, exercise, change of air and climate, juicy meats, and, lastly, milk, restore its strength and due nourishment to the debilitated frame. If the suppression of evacuations has given rise to the complaint, they must be recalled. In children it frequently happens that the drying of the *crusta lactea*, or of running ulcers, excites convulsions. In that case the head ought to be shaved, and something clapped on it to occasion ulceration. A plaster consisting of an ounce of the *emplastrum de meliloto*, and one drachm of the powder of cantharides, has been found to answer the purpose. It is likewise attended with advantage to administer internally the powder or decoction of the *Iacea tricolor*, or *flos trinitatis*, as it is named in the shops*. For it is considered as a specific by Strack. It certainly possesses the quality of drawing the matter of the *crusta lactea* outwards. When children reject this remedy it has been attended with advantage to administer it to the nurses who suckle them.

* The efficacy of this remedy in the *crusta lactea* of infants has been celebrated in an express essay by Strack, who affirms having employed it with safety and advantage for twenty years. The decoction is thus prepared: *Rec. Foliorum Iacæ dictæ floris trinitatis recent. vel siccat. m. j. concis. decoq. in lac vaccini. q. s.* Let it be given after filtration, morning and evening. The following form of the powder is employed: *Rec. Foliorum dictæ herb. in umbra siccator q. v. contund. et f. pulv. De hoc sumatur drachma dimidia, et infundatur per duas horas in lactis vaccini q. s. Deind. bull. et mox cola per setaceum. Pulticula hæc detur mane, et repetatur vesperi.* This remedy may be added to water-gruel. The milk does not become acid in consequence of it, nor of a nauseous taste, but it is condensed into a kind of cream. During the first eight days of taking the remedy, the *crusta lactea*, if it be already present, is increased, becoming more manifest, thicker, and more diffused, and the urine acquires a bad smell. If it is not present, but lurking in the system, it is expelled and called forth. The employment of it is continued until the complaint completely appears, afterwards the crusts dry and fall off; which generally happens in a fortnight afterwards. When the desquamation of the crusts has taken place, it becomes necessary to still persist for some time in the employment of the remedy, that the whole fomes of the disease may be extinguished. For this author considers that the complaint arises from a peculiar ferment, communicated by the mother or nurse, without being able to define what the nature of it is.

276. Hitherto I have been speaking of the remedies which may be serviceable in convulsive diseases in general; I shall now proceed to treat particularly of those which are peculiar to certain species of the complaint. And to begin with tetanus, which is a truly terrible complaint, though in general of very rare occurrence among us:

It is most proper to assail it and its various species and degrees, providing the strength allow, and especially if it be conjoined with fever and an inflammatory diathesis of the blood, notwithstanding of the objections which some authors have to it*, by bleeding, by the tepid bath, or that of oil, by injections, fomentations, and unctions, which prove softening, relaxing, and gently resolving, applied to the spine of the back, and by camphor, musk, and other antispasmodics. A young man of fifteen years of age, after having complained for some days of a lancinating pain in all his limbs, without any evident cause, was seized with universal tetanus. His arms and hands were extended along the trunk, perfectly rigid, and very firmly clinging to the body; his legs and feet were extended in the same manner. The belly was small and contracted, and as hard as a stone, not painful to the touch, the spine of the back was perfectly rigid, the neck immoveable, the jaws firmly shut, and the masseter and temporal muscles swelled and hard. Between the incisor teeth, which were broken, there was a small space through which some soup or medicine could be introduced. The tongue, however, remained voluble, the eyes lively, the mind was not oppressed, the respiration was sufficiently good, the pulse uniform, not quicker than natural, and free. This patient was gradually recovered by Störck, without employing the bath and fomenta-

tions, which could not be used in the hospital, by means of horse dung boiled in beer, and applied warm ; by spirit of sal ammoniac saturated with vinegar, taken in spoonfuls, to the extent of a drachm, in three ounces of the water of rue ; anointing and rubbing the spine of the back twice a-day with the oil of verbasum and spirit of sal ammoniac, and applying dry cupping-glasses every other day to the shoulders and spine †. Some recommend the cold bath, particularly if the patient be of a muscular habit, and if it be the summer-season, and very warm weather. For I do not deny, that by means of cold the sensibility of the nerves is lulled, and the heat of the blood allayed. But the disease frequently derives its origin from cold and moisture. The employment of the cold bath, therefore, requires a very prudent and judicious physician to prevent any bad consequence. But of all the remedies which are employed at present, the preference is given to the preparations of opium, administered boldly, and after short intervals. Home has observed a tetanus quickly resolved by the use of opium, when all other remedies had proved of no service ‡. In like manner Jo. Chr. Ant. Theden recommends the treatment of tetanus by means of opium ||. Parr also extols the efficacy of opium in opisthotonos. He alleviated the disease, first by giving a grain of opium every hour, and afterwards every second hour, in

conjunction with the hot bath, and he afterwards completely overcame the disease by increasing the dose, continuing it to the extent of upwards of twenty grains in the course of the day. At length he gradually diminished its dose. In the mean time he employed a julap of vinegar and camphor, and the like §. Winslow also, in symptomatic tetanus, and trismus, as in that supervening in a fracture of the os femoris, experienced the utility of employing laudanum ¶. Hillary, too, recommends copious doses of opium and musk, repeated at proper intervals **. In the treatment of opisthotonos, as occurring in South Carolina and other warm climates (255. note), arising from cold applied to the body when warm, in the same manner as warm, acrid, and blistering remedies prove hurtful, and, according to Chalmers ††, gentle purgatives, emetics, and diaphoretics, afford no relief, so, on the other hand, the warm bath, the liberal employment of opium, and, in the case of plethoric patients, bleeding, are the only remedies which afford any favourable expectations. He advises the patients to be kept in the hot bath until the pulse become softer and fuller. He recommends rubbing the neck, back, and breast while they are lying in the bath. He proposes repeating the dose of opium when the action of the former one has ceased, and continuing it until the excruciating spasm under the ensiform cartilage, and other convulsions, remit of their

violence. In the mean time he does not omit clysters, fomentations, liniments, and a few days after the solution of the spasm he administered a gentle cathartic. Huck ‡‡, an ingenious army-surgeon, cured the opisthotonos and locked-jaw, which occur on imprudently exposing wounds to the air, by exhibiting a grain of opium every hour for forty-eight hours, or by half an ounce of musk, mixed with sugar, and beat up with a drachm of opium, and taken in some julap, to the extent of a spoonful at intervals, so as to exhaust the whole composition in twenty-four hours. But in my opinion the praises of opium ought to be restricted; nor is it proper to employ upon any occasion so large a dose, before cautiously ascertaining how the former doses are borne, lest, as often happens, the disease be extinguished, together with the patient's life. Those practitioners who recommend the liberal employment of opium, seem only to relate the cases in which it has proved of service, while they pass over in silence the fatal effects of which it has at times been productive. Bilfinger, although he observes opium to be recommended by others, not only restricts such employment of it with the utmost caution, but even rejects it on account of considering it as hurtful to the nerves ||||.

* Hillary, *Med. Observ.* † *Ann. Med.* i. p. 10. ‡ *Princ. Med.* sect. vi. || *Com. Lips.* vol. xviii. p. 614. § *Med. Observ. and Inquir.* vol. iv. P. 4. and *Com. Lips.* vol. xviii. p. 394.

¶ *Collect. Societ. Med. Hauniens.* vol. i. p. 394. ** *Observ. on the Changes of the Air*, Lond. 1759. †† *Med. Observ. and Inquir.* vol. iii. ‡‡ *Med. Observ. and Inquir.* ann. 1758, and *Com. Lips.* vol. viii. §§ L. c. p. 100. Marzar also, in the girl labouring under rheumatic tetanus, whose case has already been mentioned, observed the most pernicious effects produced by the opium, particularly fainting fits of frequent occurrence, which proved almost fatal. Did this proceed from a peculiar idiosyncrasy?

277. It is a very common observation of surgeons, that both universal and partial tetanus, particularly that of the lower jaw, supervenes as a symptom, not only in wounds, which was formerly noticed from Huck, but also in the case of amputations, compound and simple fractures, and luxations. This is said to happen universally, particularly in the East Indies. This complaint generally comes on upon the fourth day after amputation, and generally proves fatal in four or five days. Bisset, however, adduces an instance of a patient having been cured upon the sixteenth day. He contends that the only remedy is the peruvian bark, particularly in the hot climates, where gangrene is apt to ensue, taken copiously in the form of a decoction, and constantly applied to the amputated limb, by rags dipped in it *. A locked jaw supervening after wounds, was frequently cured by Bilguer † by using epispastics, vesicatories, and incisions of the cheeks, on which he afterwards poured the oil of turpen-

tine, by opening the jugular vein and temporal artery, and by nourishing clysters, and volatile remedies. Bisset likewise affirms that when tetanus succeeds to inflammation of the stomach, it is removed by repeated bleeding, which appears highly probable. I once observed an universal sympathetic tetanus, which occurred in consequence of a wound in the metatarsus, which a peasant had received from a scythe having dried up too soon. He obtained relief in particular from the hot bath, and from the opening of the wound, by which a passage was made for the pus or ichor ‡. Monro proposes the rubbing in of mercurial ointment for the cure of tetanus ||. De la Roche mentions his having been successful in curing tetanus in the same manner §. And Boveix experienced similar effects from employing the same remedy ¶.

* *Medical Essays and Observat.* vol. 3. p. 96. to 100.

† *Nouveaux Mémoires de l'Acad. Royal des Scienc. et Bell. Lettr. de Berlin* .an. 1770. p. 60.

‡ See a history in *Sagg. de*

Medicin. Pratic. P. 2. p. 93.

|| *Essays of Edinb.* vol. iii.

§ *Journ. de Medec.* T. xl. p. 213.

¶ *Journal de Medec.* Septemb. 1774. p. 222.

278. With regard to St Vitus's dance, or the scelotyrbe of Sauvages, if credit be due to Sydenham, it is cured by repeated bleeding and purging *. We must next have recourse to anti-

spasmodics ; dry cupping-glasses must be applied to the affected limbs, and strengthening remedies, as peruvian bark, steel, and the cold bath, employed. Meade indeed mentions, that he never found any difficulty in completely removing St Vitus's Dance, by the frequent immersion of the body in the cold bath, and by employing chalybeates †. We read of a boy affected with St Vitus's dance having been cured by Gaubius by means of anthelminthics ‡. Max. Jac. de Man obtained the greatest advantage from employing electricity in a girl of ten years of age, who laboured under this complaint ||. Alliet also employed electricity, together with diluents, aperients, antifebrile and strengthening remedies, change of air, nourishing diet, and particularly exercise §. A pregnant woman likewise, who had been attacked with St Vitus's dance, derived benefit from the employment of peruvian bark, exercise, and a proper regimen ¶. Bisset affirms that the utmost advantage is afforded by continuing to take, for a considerable length of time, an electuary containing an ounce and a half of the flowers of sulphur, of the powder of the root of piony and wild valerian *ana* three drachms, of the cinnabar of antimony, two drachms, of musk and castor, *ana* one scruple, and of simple syrup of sugar sufficient to form the electuary. As the disease goes off, he recommends the employment of the tincture of peru-

vian bark, and bathing in sea-water, the utility of which last he affirms to have frequently experienced, while he observed that bathing in river-water rather proved detrimental. Likewise in the case of an obstinate disease, he mentions having applied a blister to the back, and lastly, to the os sacrum, with advantage; as also to have employed repeated rubbing of the neck and whole spine of the back with spirits of wine. On the other hand, contrary to what Sydenham tells us, he affirms that bleeding and purging were prejudicial **. P. S. Wauters, in five histories which he adduces, endeavours to shew the antispasmodic power of assafoetida, employed liberally not only in St Vitus's dance, but also in other very severe convulsive diseases, and in those combined with paralysis, epilepsy, and mania. He dissolves three drachms of assafoetida in six ounces of spring-water, and to render it agreeable, adds an ounce of the syrup of violets. Of this mixture he prescribes one or two spoonfuls to be taken every half-hour, for some days, and as soon as the disease begins to abate, he recommends gradually diminishing the frequency of its doses ††. Mahon ascertained by experiment, that antispasmodic remedies and the peruvian bark possess the greatest efficacy in curing this complaint when it proves obstinate ‡‡. I myself lately performed a complete cure of a confirmed

and perfect St Vitus's dance, in a girl of twelve years of age, who some years before had been subject to the same complaint, merely by the employment of the flowers of zinc.

* *Oper. Proceff. Integr.* p. 686. † *De Imp. Sol. et Lun.* p. 17. ‡ *Com. Lips.* vol. iii. p. 456. || *Com. Lips.* vol. xviii. p. 601. § *Orteschi, Giorn. Med.* T. ii. p. 127. ¶ *Giorn. Med.* T. iii. p. 67. ** *Med. Essays and Observ.* cit. p. 165. to 170. †† *Journ. de Méd.* Aout 1781. ‡‡ *Journ. de Méd.* Juin 1782. T. lvii. p. 553.

279. It has already been remarked (278.) that electricity proves serviceable in St Vitus's dance. It is proper to observe, however, that the same remedy, and particularly the electrical stroke, as it is called, is sometimes the cause of convulsive motions. When the convulsions proceeded from that cause, and constantly increased, they were allayed by Owen by administering musk to the extent of half a drachm, first every four hours, and afterwards only twice a day, in the form of a bolus *. The cramp also, although it in general quickly disappears, scarcely requires the assistance of a physician. Sometimes, however, it is so troublesome, particularly in pregnant women, as to require attention being paid to it. Generally merely by gentle friction of the convulsed part, or by rubbing upon it the spirit of juniper-berries, or theriacal or Hungary water, it is removed. It is of service also to defend the part from cold. If these prove insufficient, we ought to consider

whether or not there be reason to suspect that plethora occasions the complaint. If it be present, it is quickly cured by means of bleeding. But it sometimes happens, as I have had occasion to see, that the complaint is excited by acrid and tenacious lymph irritating certain muscles and their sheaths. In that case the bath, fomentations, and the decoctions of the woods, which prove attenuating and diaphoretic, gradually remove the complaint.

* *Med. Observ. and Inquir. by a Society, &c. vol. iii.*

280. It now becomes necessary to say something of the peculiar methods of treatment of epilepsy itself. If the symptoms present point out its approach, as sometimes happens, authors recommend preventing it by means of opium conjoined with antispasmodics, for instance, a grain of the *laudanum nepenthes Quarcetani*, and the like quantity of camphor, formed into a bolus in conjunction with some proper conserve or extract. But if it appear beforehand that the disease is about to ascend from some remote part to the head, it ought to be checked by means of a tight bandage and painful frictions. Likewise cupping-glasses, leeches, or red-hot iron, may be applied to the part from which the disease seems to begin or proceed, with the probable view of destroying the internal cause. A female patient, about thirty-eight years of age, for twelve years laboured

under an epilepsy which returned once a-month. At length, however, the attacks became so frequent as to return four or five times every day, and continue an hour, or an hour and an half. All kinds of evacuant remedies, as well as a great many antepileptic and cephalic ones, and not a few others, had been tried, but in vain. The paroxysm uniformly began in the leg, about the lower part of the muscles named *gemini*, and immediately upon seizing the head she fell down. She was then observed to foam at the mouth; and the lips, neck, and limbs were convulsed in a surprising manner. While the woman was visited by Mr Short, who attended her, she was attacked with a fit, and fell down, upon which he examined the leg affected, without being able to discover in it any redness, hardness, or laxity, by which it differed from its healthy condition. However, as he suspected that the cause of the complaint existed in the part from which it uniformly commenced, he forced his lancet two inches into it, and struck against a hard body, which, after having gently separated it from the muscles, he extracted with a small forceps. It proved to be a hard and cartilaginous substance, or ganglion, of the size of a large pea, and rested upon a nerve, which he was obliged to cut, in order to take it out. The woman immediately came to herself, and declared that she felt perfectly recovered. She very quickly regained her

vigour, both of mind and body, nor did she afterwards experience an attack of epilepsy *. Herbert also cured a chronic and habitual sympathetic epilepsy, which arose from the great toe, *by binding a ligature above the knee, and destroying the nerve of the great toe* †.

* *Medical Obs. and Inq. by a Society, &c.* vol. iv. † *Com. Lipsf.* vol. iv. p. 233.

281. But when the patient is at length attacked with a fit, we must immediately endeavour, as far as possible, to prevent his receiving any injury from the violent agitation of his body. He ought therefore to be put into a bed, in a light apartment, with his head raised. A piece of leather, or some folds of linen, ought to be thrust in between the teeth, to prevent the patient from biting his tongue. It is a good plan also to gently extend the convulsed limbs, to anoint them with oil, and to gently rub the neck, throat, head, and other parts, with the warm hand, to apply a bladder half full of warm water, or emollient fomentations, to the hypochondres and belly, by which not only the spasms are more quickly allayed, but also the respiration rendered easier. Hippocrates, as Van Swieten mentions, to the oil added wine in which the seeds of hyoscyomus had been infused, and with this liniment, as inducing stupor, he caused the convulsed limbs to be anointed. But if the paroxysm be protracted longer, and

the patient appear for the most part overwhelmed with stupor, so as to give reason to apprehend an attack of apoplexy, we may have recourse to more powerful remedies, as painful binding of the limbs, dry cupping-glasses, the perfumes of oil of amber, spirit of hartshorn, and sal ammoniac, tincture of castor, or assafoetida, to be applied to the nose, injections, and similar remedies, with the view of rousing the patient. But of all the remedies, bleeding generally proves most serviceable, especially from the jugular vein or temporal artery, providing the disease neither depends upon inanition nor loss of strength. For during the long-continued contraction of muscular parts, although of the clonic kind, and accompanied with alternate relaxations, it must necessarily happen, that the blood is forced in too great quantity to the head, while its return to the heart is very much retarded, so as to occasion an oppression of the brain on all hands, in consequence of the turgescence of the vessels and sinuses of its membranes. In which case, every person must perceive with what advantage the emptying of the vessels, and relieving of the brain, by bleeding, will be attended. I have repeatedly employed it with the greatest success in long-continued paroxysms, particularly when the disease had proceeded from plethora, either real or spurious, or from the checking of some customary evacuation of blood, or from a metastasis of the matter of gout and arthritis,

or from any violent or sudden passion of the mind.

282. When the paroxysm is not present, we must inquire into the cause from which the disease proceeds, and regulate the cure intirely by its nature, in the same manner as I have already prescribed in the general treatment of convulsive affections (271. 272.). The first remedies are those which surgery affords. Of these bleeding appears to be proper when plethora is present, when the patient is of a good habit, and in the prime of life, or when the menstrual or hemorrhoidal discharge, or an hemorrhage from the nose, happen to be suppressed. It may likewise be repeated, by way of preventative, about the equinox, and sometimes also about the solstice, in plethoric people. If the patients be liable to hemorrhoids it is proper to apply leeches to the anus, that the customary evacuation may be again recalled. This remedy is also attended with the utmost advantage in hypochondriacal and hysterical patients, in whom epilepsy frequently takes place, in consequence of congestions of the inferior abdominal viscera. If the disease comes on in consequence of the stopping of the menses, and recurs periodically every month, their place may be supplied by a slight bleeding, employed a little before the usual time when the menses appear, until the paroxysms cease, and the strength is improved. I have seen an epilepsy which arose

from this cause, removed by employing this method of cure upwards of a year *. Some recommend applying the cautery a little below the occiput, or to the coronal future; and in fact it appears from observation, that sometimes very remarkable benefit has been obtained in this way. In children, in particular, an issue made by burning in the back-part of the head, when they are of a full and juicy habit of body, or abound with a ferous colluvies, or when the *crusta lactea* has been suppressed, has frequently been productive of the greatest benefit. In some habits, however, blisters seem to be safer, and not less useful, if the ulcers are kept open for a good while. A boy of five years of age, who for two years had been accustomed on falling asleep to be attacked with epilepsy, in consequence of which he had become dull, and lost the power of his legs, so as to be no longer capable of standing, after innumerable remedies had been employed to no purpose, was at length completely cured of the epileptic attacks, by Seraus, and recovered the use of his legs, merely by the application of a blister to the posterior extremity of the sagittal future †. Meade used to produce ulceration in the occiput by means of cantharides, and, tearing off the epidermis, he allowed the ferous fluid to continue running for a long time, and, as he affirms, always with the greatest success ||. Long before them, however, the efficacy of blisters applied to

the head shaved, in this disease, had been experienced by Septali, whose words I shall transcribe. “In confirmed epilepsy occasioned by an affection of the brain, the most efficacious method of treatment is applying all over the head, previously shaved, a blister, in order to attract the virulent humours to the surface, leaving the ulcers in the head a long time open, that the ferous fluids may continue long to be discharged by them. For I have observed the most obstinate diseases of the head cured in this manner §.”

* Likewise my friend Rosetti, Professor of the Practice at Cesena, employed a similar method of cure. He has informed me in a letter that he cured a great many epileptic patients intirely in this way. He first gently purged the patient with rhubarb, manna, or cassia. Afterwards, about two days before full moon, he ordered about five ounces of blood to be taken from the vein on the back of the hand; and this he repeated every month, except April and October, in which, in place of venesection, he thought it better to apply leeches to the anus during the last stage of the decrease of the moon. During the other months, as I have already said, he drew blood from the vein on the back of the hand, beginning first with the left hand, and next proceeding to the right, observing the same order for a twelvemonth. During the whole of this period he caused the patient every morning to swallow a drachm of the powder of horses ~~testicles~~^{testicles} in weak broth, and in the evening, at bed-time, he ordered the temples, occiput, neck, and nostrils, to be anointed with the oil of soap. He prescribed diet consisting of soups, eggs, and boiled flesh, and for drink merely the water of the jujube tree, altered with red-hot steel. He remarks that this method of cure is calculated only for the epilepsy proceeding from too

great a quantity, or heat of the blood, and for young plethoric people. So far Rosetti proceeds in his epistle. Concerning this method of treating epilepsy, if I remember well, mention is likewise made by other writers and nostrum dealers.

† Heister, *Instit. Chir.* P. ii. p. 38. and before him Car. Pifo, *De Morb. Cap.* sect. 2. P. 2. c. vii. ‡ Morgag. *Epist. Anat. Med.* x. n. 8. || *De Imp. Sol. et Lun.* c. 2. p. 8. § *Anim. et Caut. Med.* vi. n. 55.

283. Pharmacy also affords many medicines for overcoming epilepsy. Among these all kinds of evacuants, but particularly emetics and cathartics, are recommended. In the sympathetic species occasioned by a colluvies in the *primæ viæ*, those evacuants which gently purge the belly, *per epicrasin*, hold the principal rank. Galen, as Felici has very properly remarked, by employing nearly the same method of evacuation, performed a cure *. In the employment of purgatives it has been a general opinion that they are used with most advantage before the new moon, full moon, and quarters. In the sympathetic epilepsy proceeding from a morbid collection in the *primæ viæ*, which Baglivi † found to occur most frequently in children, he attempted the cure by means of salt of vitriol taken to the extent of a scruple or drachm in soup, by which vomiting is excited, and the hurtful matter which sometimes cannot be removed by cathartics, is thrown off. Others attempt that by ipecacuanha, by tartar emetic dissolved in a great quantity of water, by oxymel of squills,

by fyrup of tobacco, and other emetics : nor do they employ these in the sympathetic epilepsy only, but some are of opinion that they ought likewise to be attempted in the idiopathic species. And although they do not want instances of successful cures performed in this way, I shall still continue to insist upon the propriety of the remarks which I have brought forward elsewhere concerning the extreme caution with which emetics are to be employed in idiopathic diseases of the head. Others prefer cathartics. By means of them they hope, that the impacted humour, which proves hurtful to the brain and nerves, may be removed, attenuated, derived elsewhere, and, lastly, excreted. Nor do they refrain from hellebore itself, from colocynth, elaterium, and other drastic purgatives. Some wonderful cures of epilepsy are said to have been performed by means of them. An old woman in Bologna formerly sold a nostrum by which many people were said to have been cured. It was supposed to be the tincture of colocynth, extracted by means of spirit of wine, of which a small cupful used to be given every day for some weeks. I knew a nobleman, however, who, although he had employed that remedy with some relief, notwithstanding remained epileptic till he arrived at old age. I do not deny, however, that sometimes, by means of cathartics, the cause of epilepsy may be completely removed, but they require being

in the hands of a practitioner of great prudence ; for they may not be calculated for every temperament, age, sex, habit of body, and cause ‡.

* *Differt. del Prefag. Med.* p. 198.

† *Append. de Asthmat.*

‡ Concerning the cautious employment of emetics and cathartics in the cure of epilepsy, let us hear what Septali, a celebrated physician of Milan, says. Although otherwise not averse to emetics, he observes : “ As I observe most authors, after the example of Aretæus and Avicenna, employ the most powerful emetics and cathartics in preventing epilepsy, I must confess, from long experience, that I never saw this disease proceeding from the proper affection of the brain cured by powerful emetics, which, on the contrary, reduce the patients to a more deplorable state. But I have observed the more violent purges sometimes prove serviceable, providing they were not too frequently employed : for the animal spirits being exhausted by their too frequent use, apoplexies are frequently occasioned.”

284. The efficacy of opium in the convulsive affections, and in tetanus itself, has already been shewn (271. 276.). Why may we not expect the same good effects from its employment in epilepsy? Morgagni at least, discovered its wonderful utility in the cure of this complaint, which he has confirmed by various instances *. He mentions, in the first place, that a boy who had become epileptic in consequence of terror, and had received no benefit either from bleeding, or from the remedies calculated for expelling the ferous fluid, was restored to his former health by employing daily, a single grain of opium in

divided doses. Nor did it prove serviceable only to this boy labouring under epilepsy proceeding from that cause, but an old man also, of sixty-eight years of age, experienced its beneficial effects. This patient laboured under epilepsy proceeding from consent with the hypochondres, and at the same time seemed disposed to hydrothorax. Cathartics, aperients, and diuretics, were employed to no purpose; nay, the diuretics were found to aggravate the paroxysms, probably on account of their possessing somewhat of a stimulant property. He at length recovered, in consequence of having taken half a grain of opium daily for a long time. Nor does it seem unreasonable to expect some advantage from the employment of opium in hysterical epilepsy, and any other sympathetic species, or when it is conjoined with excessive sensibility, or originates from pains.

* *Epist. Anat. Med.* ix. n. 6. & 7.

285. In no diseases are more specifics boasted of than in epilepsy. I may enumerate the principal ones. Van Swieten* writes, that mistletoe has long been celebrated as possessing a remarkably strengthening power, and therefore has acquired a great name in the cure of epilepsy arising from debility. But long before this, its antepileptic power was known to Boyle, who mentions the case of a lady of rank who had long laboured under a kind of hereditary epilep-

fy, and was at length restored to perfect health, after many remedies had been employed in vain, merely by the powder of genuine mistletoe, taken for some time daily about the time of the full moon, to the extent of a drachm, in the water of black cherries †. Loeseke cured two patients of an epilepsy, the cause of which he could not discover, by administering every three hours, half a drachm of mistletoe, together with a decoction composed of four ounces of mistletoe, reduced to a fine powder, and an handful of the flowers of piony, thrown into sixty ounces of boiling water, and macerated for some time, adding to the liquor when strained two ounces of the syrup of piony to create an agreeable taste ‡. A great many authors likewise recommend as a specific in epilepsy, wild valerian root, after Fabius Columna had experienced its antepileptic powers in his own person, and many patients besides ||. The authority of Columna has been confirmed by Marchand §, who having set about some new experiments for the purpose, ascertained the wonderful efficacy of this remedy ¶. From the observations of this author, it appears that this root sometimes purges the belly, and occasions the discharge of lumbrici, and sometimes causes a diaphoresis. Hence Planc, in his notes upon the *Phytobosanium* of Columna, has ascribed to it merely an anthelminthic property, and is convinced that it proves to be a remedy only in the

species of epilepsy which is occasioned by worms. Be this as it may, most authors of the present day consider it as being one of the efficacious remedies against epilepsy. Among the modern writers who have celebrated its virtue, I cannot pass over Tiffot ** and Scopoli ††. But in order to prove efficacious, it ought to be dug in the month of March, before its stem appears; and, after being dried, reduced to a very fine powder, of which a drachm, or a drachm and a half, or even two drachms, may be employed daily ‡‡.

* § 1084. † *De Utilit. Nat. Philosoph.* P. ii. sect. 5. cap. 7. ‡ *Com. Lips.* vol. v. p. 126. || *In Phytobasano.*

§ Before Marchand, Panaroli, induced by the authority of Columna, frequently employed this remedy with success. See his *Observ.* 33. cent. 1.

¶ *Mem. de l'Acad. Royal*, 1706. p. 430. ed. *Amsterd.*
 ** *Traité de l'Epileps.* art. 25. p. 300. †† *Flor. Carniol.*
 T. i. p. 33. ‡‡ *Phytobas.* p. 120.

286. According to Riverius, the learned Crato pronounced cinnabar to be the very magnet of epilepsy. Hoffman approved particularly of the native cinnabar in epilepsy, as well as in other affections of the head proceeding from an effusion of serum or blood. For it appeared to him to possess a wonderfully resolving power; and with good reason, as it is

composed of mercury and sulphur intimately united. For mercury, although, when improperly administered, it is said to have sometimes occasioned epilepsy, has justly obtained a place among the antepileptic remedies: for it has frequently answered the physician's expectations. Dovar used to employ sweet mercury mixed with the cinnabar of antimony, and to a considerable extent *. I myself have seen an epileptic patient cured by means of sweet mercury, to whom I administered this remedy for upwards of thirty days, in order to prevent the accession of hydrophobia, in consequence of the bite of a mad dog. Trogher † prefers the mercurial pills to other preparations ‡, by half a drachm of which, given every other day for six months, and afterwards every fourth or fifth day only, for other six, with a decoction of wild valerian root taken above it, he restored to perfect health a woman labouring under epilepsy. Nor is there any doubt that venereal remedies, especially if there be any suspicion of the presence of lues venerea, will be much more serviceable. Benedictus Sylvaticus ||, Willis §, Ettmuller ¶, Rolfinck **, Houffet ††, and other very experienced physicians, recommend exciting a salivation in idiopathic epilepsy, when it proves obstinate, by means of either the internal or external employment of mercury.

* *Edin. Med. Essays*, vol. ii. † Dall' Arme, *Sag. di Med.*

Prat. P. ii. p. 92. & Nov. Letter. de Firenze del 1762, p. 183.
where the whole observation is inserted.

‡ The formula of the pills was the following :

Rec. Hydrargyri unciam unam. Solv. et exsting. cum terebinth. 3vi. deinde add. Agarici et extract. Rhabarbari, singulorum drachmas duas, Aloës succotrinæ drachmas tres. M. f. pil.

|| *Consult. 47.* § *De Morb. Convuls. c. 3.* ¶ *Oper. T. ii. art. viii. p. 884.* ** *Med. Consult. p. 193.* †† *Mémoire. sur. l'Epileps.*

287. Likewise Fuller's *electuary* described in the *Extemporaneous Pharmacopœia*, has acquired great celebrity. It is composed of six drachms of pulverised bark, and two drachms of Virginian snake-root. These are reduced into the form of a soft electuary, with the syrup of the flowers of piony. It has been pronounced to be a most efficacious and certain remedy by an anonymous author, who, along with Fuller, has communicated its composition, and the mode of employing it. The communicator of this arcanum observes : " If, after the proper evacuations, a drachm of this electuary, or in some cases a smaller dose, be exhibited to adults, morning and evening, for three or four months, and be afterwards repeated for three or four days before the new and full moon, it completely eradicates epileptic and hysterical diseases, as well as the convulsive dancing known by the name of the *Chorea Sancti Viti*." But we set such a value

upon this electuary at Milan, that it is indiscriminately prescribed in all convulsive diseases, and particularly in the epileptic affections of children, in which I have sometimes seen it employed for years ; although, if any benefit was received, I am doubtful whether to ascribe it to the remedy, or to the patient's advancing in life. I have found it altogether useless in many patients, and in some even not unattended with harm. But whatever good effect it produced, took place in the periodical epilepsies in patients of a cold and moist temperament, and of a weak and relaxed habit of body ; which certainly ought to be referred chiefly to the virtue of the peruvian bark. After the example of Fuller's electuary, I find another of a similar kind recommended by Meade *, consisting of an ounce of pulverised bark, two drachms of the powder of wild valerian, together with the syrup of orange-peel, beat up into the form of an electuary. " Of this," he observes, " after premising the proper evacuations, let the patient take a bolus equal to a drachm, morning and evening, for three successive months, afterwards repeating it for three or four days before the new and full moon.

* *Monit. et Prac. Med.* c. 2. sect. iii. p. 37. Lond. 1751.

288. With the view of mitigating, or even curing, the idiopathic epilepsy, Lang employs a mixture consisting of a scruple of assafoetida,

dissolved in an ounce of hartshorn, of which he prescribes thirty drops to be given, before the accession, in the water of leeches, along with castor. But he advises refraining from it in plethoric people before diminishing the quantity of blood by venesection. Meyer, a celebrated physician of England, among several other remedies which he proposes for the cure of epilepsy, considers as a most excellent medicine the powder of the seeds of *hyoscyomus* employed for upwards of forty days. He recommends beginning with six or eight grains, and gradually increasing the dose to a scruple, or twenty-four grains, in a spoonful of the juice of the *sempervivum*, recently expressed †. But this remedy ought to be considered as suspicious on account of the narcotic effect which it produces. Modern writers, however, propose the extract of *hyoscyomus*, which is prepared from the juice of this plant, inspissated before the fire, for removing convulsive affections, and epilepsy itself,—particularly if these complaints proceed from affections of the mind,—considering it as an innocent paregoric; and they confirm its efficacy by adducing experiments which they have made with it. At first a grain of the extract is given thrice a-day, and its dose is gradually increased to a scruple, and even to half a drachm. But Greding, who administered that extract to ten patients affected with melancholy and mania combined, to eleven affected with mania, to four-

teen epileptic patients, and to five affected with epilepsy and mania conjoined, concludes, from his experience of it, “ That hyoscyomus can neither be exhibited with safety internally, nor is to be considered as a salutary remedy in melancholy and epileptic diseases, as it appears to be to some ‡.” They contend also, that the extract of stramony, prepared in the same manner, and given at first to the extent of half a grain twice a-day, its dose being afterwards gradually increased to fifteen or twenty grains, given at intervals in the course of the twenty-four hours, proves beneficial in epileptic affections ||. Its antepileptic virtue is confirmed by Odhel § ; for that extract was exhibited to fourteen epileptic patients in the Hospital of Stockholm, of whom eight perfectly recovered, and five received great benefit, only one remaining in the same state.

* *Miscel. Verit.* fasc. i. p. 59. † *Prax. Mayernian.* l. 1. c. 3. p. 26. ‡ *Advers. Med. Pract.* Ludwig, P. i. p. 71. edit. Lips. 1779. || Joach. Spalowsky, *Dissert. Inaug. Med. de Cicut. Flam.* &c. p. 30. § *Edinburgh Med. and Philos. Essays*, vol. i. P. 4. art. 4.

289. Some preparations of copper also have been recommended. A solution of brass, by means of sal ammoniac, properly boiled in water, gives the blue liquor which constitutes the famous antepileptic remedy for children. Boerhaave mentions, “ that a few drops of it given in hydromel, upon an empty stomach, by exciting a gentle

commotion, looseness, and nausea, have a wonderful effect in changing their torpid and delicate stomachs ; that they excite them, draw off water and phlegm, and destroy worms. That in consequence of these effects, certain vitiated states of the fluids, and species of epilepsy, are removed." The specific of Weissman is not unlike the preceding ; it consists of vitriol of copper dissolved in rain-water, strained and completely saturated with the spirit of sal ammoniac, upon which, after standing some time, the most highly-rectified spirit of wine is poured, so as to cause the precipitation of beautiful crystals, like sapphire. These last constitute the specific against epilepsy, which is endowed with remarkable virtue †. Among these means ranks the *sulphur venereum*, the manner of preparing which, whoever wishes to know, may consult a dissertation published at Vienna by Pasqualati of Trieste, chiefly in recommendation of it. But Greding, already quoted, adduces seven experiments made to ascertain the powers of this remedy, from which he concludes in these words : " These seven histories are more than sufficient to demonstrate that this sulphur of copper, given either in a small or great dose, proved of no service, either in the cure or alleviation of confirmed epilepsy ‡."

* *Elem. Chem.* T. ii. Proc. clxxxix. p. 263. † *Com. Lips.* vol. vii. P. i. p. 137. ‡ *Advers. Med. Pract. modo citat.* P. iii. p. 530.

290. The following remedies are not destitute of efficacy, namely, musk, both alone and conjoined with cinnabar, the *liq. anod. min.* of Hoffman, Pezoldt's antepileptic spirit of vitriol, the *liq. corn. cerv. succinat.* the animal oil of Dippe- lius, peacock's dung, flowers of zinc *, the root of white dittany † and piony; rue, baum, the leaves and peel of oranges, the *pulvis epilepticus* of Marchion, the *pulvis de gutteta* of Riverius ‡, the pulvis Hanoveranus, spirit of human blood, the antepileptic water of Lang, and an infinite variety of similar remedies. Some, along with Barbetta, exhibit half a drachm of Spanish soap, boiled up in three ounces of milk, morning and evening, for thirty days, and mention having frequently cured epilepsy in this manner. Milk, in conjunction with Spanish or Venice soap, particularly asses milk, given liberally, and continued for a considerable length of time, is celebrated by many, and I find it frequently recommended in the cure of epilepsy by Beccaria, formerly Professor of Medicine in Bologna, a physician of the deepest medical erudition and long experience, in consequence of which he had become a practitioner of the greatest prudence, with submission to those persons who not only do not approve of, but even affect to despise his *Consultations*. They are probably not pleased with his elaborate investigations of the causes and nature of diseases, which occur throughout, and his very simple me-

thod of treatment, which he always prefers to a more laborious and complex one. But that the greatest excellence of a physician in fact consists in these two particulars, will be acknowledged by every person who has examined the power of medicine, and made himself properly acquainted with the delicate structure of the human body, which requires being treated with the utmost gentleness. For an author who is consulted ought not only to satisfy himself, but also the physician who consults him, which he cannot do without treating at length of the nature and causes of diseases. Moreover, he ought to propose those remedies which he himself thinks or knows to be best adapted to the patient, and which he has experienced to be more friendly to nature. Such is the plan which was adopted by our most eminent physicians, namely, Redi, Delpapi, Lancisi, Malpighi, Albertini, Cocchi, Vallisner, and most of the Hippocratic school, that is to say, of the followers of nature, to whom much is due from medicine, and still more from their patients. This distinguished character, respected and esteemed through the whole of Italy, taught by experience, and guided by his own good sense, thought proper in no measure to deviate from their example.

* The flowers of zinc were not employed formerly, excepting in external applications, and particularly in inflammations and redness of the eyes occasioned by acrid and corroding

lymph. But when Gaubius learnt that the nostrum of the celebrated empiric Ludeman, which he used under the name of *luna fixata*, was composed of them, they began to be employed both by this ingenious physician, as well as others, likewise internally, in all spasmodic and convulsive affections, and particularly in epilepsy. Gaubius determines the dose in children to be one grain given twice a-day, and in adults a grain to be repeated every other hour. Van Doevern, however, recommends prescribing them in another way; he mixes twelve grains of the flowers of zinc with two grains of sugar, dividing the whole mixture into twelve equal parts, of which he orders one to be taken thrice a-day. Percival did not hesitate to increase their dose to five grains, to be taken thrice a-day. This remedy, as Hart supposes, appears to possess, independently of an absorbent power, a peculiar and specific property, which we name *antispasmodic*. De la Roche (*Observ. sur l'Usag. Inter. des Fleurs de Zinc insérées dans le T. lii. du Journ. de Med. de Paris*), in consequence of seven or eight years experience of it, affirms that this remedy was never found in any measure poisonous, as is asserted by some. And not only he himself, but likewise his friends, employed it indiscriminately in every convulsive and spasmodic affection, and at every period of life, uniformly experiencing salutary effects from it, which lasted at least for some time, in all those cases in which there was not present an organic injury rendering them incurable. But even in these cases it appeared to afford relief. He is therefore of opinion, that the flowers of zinc act upon the *vital principle*, as he calls it, by diminishing the *irritability of the nervous system*, but in a very different way from that in which narcotics act. He does not deny, however, that they sometimes occasion vomiting when taken in great quantity: which would indicate their possessing an irritating, resolving, and attenuant quality, from which, probably, its antispasmodic property intirely proceeds. But this vomiting does not universally take place, nor continue, nor does it always follow the ratio of the quantity taken, as far as he could learn. He likewise adds, that when given in a small dose, namely, to the extent of one or two grains, they

occasion unusual alacrity and hilarity. He affirms that they prove of service in the convulsive affections of children, particularly their starting during sleep, when organic injuries of the brain, and obstructions of the abdominal viscera, are not present; as also in the convulsive cough, and hysterical convulsive affections of women. Lastly, he remarks, that half a grain, or even an intire one, is frequently too small a dose, and ought therefore to be gradually increased. He proceeded to the extent of twenty or thirty grains, or even more. To adults he gave first two or three grains every three hours, and shortly afterwards increased the dose to six grains each time, if he observed no effect take place, nor any injury ensue, and if nausea was not occasioned. This remedy, when taken in the form of pills, is less troublesome to the stomach, but acts more slowly. In children he begins with the fourth or fifth part of a grain, gradually proceeding to a larger dose. He denies that it contains any lead, in consequence of which it might induce the *colica saturnina*. But in order to set the power of the flowers of zinc in a clearer point of view, he adduces ten cases in confirmation of their efficacy. But many more instances, demonstrating their antispasmodic property, may be seen in the *Edinburgh Med. and Philos. Essays*, vol. i. P. i. sect. 1. art. 11. P. ii. sect. 2. art. 2. P. iv. sect. 2. art. 3. & vol. ii. P. iii. sect. 3. &c. and Tissot, *Mallat. de' Nervi*, T. ii. P. ii. p. 338.

† The antepileptic powers of white dittany, or the *fraxinella officinalis*, have long ago been ascertained by the physicians of Vienna. Its root, in particular, is said to possess this virtue. It is usually exhibited either in the form of powder, essence, electuary, or medicated wine. The powder of this root is given twice a-day in a dose of from five to twenty grains, for six weeks at least. The *essence* is prepared as follows:—

Rec. Rad. dictamni alb. recent. et minutim concis. unc. duas; spirit. vini purissim. unc. quatuordecim. M. et stent in digestionem, donec fiat essentia bene saturata. Tempore digestionis agitetur subinde vas. Post purgans exhibitum dari solet essentia a guttis viginti ad quinquaginta ter in die ad mensem unum, vel duos, vel tres.

The electuary.

Rec. Pulv. rad. dictamn. alb. unc. dimid. conserv. menthæ unc. duas; fur. menth. q. s. ut. f. elect. Sumat. æger omni trihorio parvum cochleare.

The medicated wine.

Rec. Pulv. rad. dictamn. albi unc. unam. Limat. mart. non rubiginos. drachm. tres. Vini generos. Austriac. lib. unam. M. digere per horas viginti quatuor. Dein cola. Detur omni bihorio cochlear. unum. Hoc. vinum convenit in chlorosi, et retentione menstruum, et ubi spasms ægri laborant, vel debiles sunt ex nimia feminis, aut aliorum humorum deperditione.

‡ These powders ought to be freed from the nugatory ingredients, as ivory filings, elk's-hoof, ashes, pearls, the human skull, hyacinth, crude hartshorn, gold leaves, and other things possessing no kind of antepileptic virtue.

291. But in the midst of this variety of boasted remedies, let no one suppose that epilepsy will always yield to them, or that every species of epilepsy, although curable, will admit of the same method of cure or remedies. Morgagni, with his usual learning, endeavours to inculcate this idea when he observes: "That if epilepsy be supposed to proceed from induration of the brain, from an abscess of a particular kind, from distension of the vessels, from water collected either in considerable quantity, or sparingly, or from that which is yellow or limpid, or from other causes, or, if it be allowed that these are effects only, and that it is fomented, kept up, and increased by them; it appears how difficult and impracticable its cure must sometimes be. It appears also,

when its cure is not impossible, how various it ought to be, both when the complaint proceeds from a cause situate within the skull, as well as from one without it *."

* *Epist. Anat. Med.* ix. n. 26.

292. Hence our most skilful physicians confide more in those remedies which produce a change over the whole system, than in nostrums and specifics. For in this manner they hope to be able gradually to destroy that condition of the brain, whatever it is, which may be considered as an exciting cause, or to correct the remote causes, which generally proceed from abundance, or dyscrasy of the fluids, in such a manner that those which excite diseases may become incapable of acting. They therefore endeavour occasionally to diminish the quantity of blood when plethora happens to be present ; to remove the bad condition of the fluids, when the symptoms denote it, by evacuates ; to blunt the acrimony by diluents, cooling things, and sheathers ; in one word, to restore every thing to a due balance and equilibrium. With which view they prescribe venesection at stated periods, not omitting occasional purging. They employ diuretics and sudorifics, and particularly whey, the juices or infusions of succory, fumitory, and baum, the decoctions of bark-root, that of sarsaparilla, and sometimes of guaiac, asses milk, and medicated waters, continuing their use for a long time, the fresh-water bath, viper-soup, that

of frogs and eels, as occasion may serve. But they place their chief reliance, as the most ancient physicians formerly did, on the employment of a proper diet. For by means of it a bland condition may be imparted to the fluids, in consequence of which neither the brain nor nerves are in any way vellicated or severely affected. They therefore principally recommend change of air, travelling, exercise, the due regulation of the sleep, tranquillity of mind, and the employment of digestible and bland articles of diet. They prescribe total abstinence from wine, by which means alone many are said to have been freed from epilepsy. They advise avoiding too full eating of every kind, and forbid the use of hard, difficultly digestible, salt, or acrid food, or that which in any way quickens the motion of the blood. The drinking of coffee, as being inimical to the nerves, should be avoided. Salom. Theoph. Meza once observed a fatal epilepsy occasioned by the drinking a very strong decoction of it*. The drinking of water, milk diet, and purity of the air alone, have sometimes restored the health. But in children and young people much benefit may be expected from their advancing in life. Enough, then, of epilepsy †.

* *Collect. Soc. Med. Hauniens.* vol. i. p. 154.

† I have said as much concerning this disease as the nature of this work allows; though others may think that enough has not been said. To such persons I should recommend a most

complete treatise on the subject, entitled *Traité de l'Epilepsie*, par M. Tissot, *Doct. Med. &c.* in 8vo, a Paris, 1772. The student cannot make himself too well acquainted with this very excellent work, in which he will find explained in the fullest manner every thing relating to the history, causes, symptoms, and method of cure of this disease.

CHAPTER IX.

OF VERTIGO.

293. VERTIGO, by the Greeks named *Dinos*, is by us considered as that affection in which a person thinks his head is suddenly turning round, or that the external objects, although in fact quiescent, are suddenly thrown into a circulatory motion, or in which both seem to take place, sense and voluntary motion being in some measure deranged, and the body becoming unsteady. By this description, I believe, is immediately perceived what is understood by this name; nor am I at all anxious about the point which is disputed by nosologists, namely, whether it ought to be referred to the diminished or increased motions*. In it I have comprehended, not only the sudden apparent rotatory or tremulous motion of the surrounding objects, but I have likewise added the

fallacious sensation with which the patient is affected, as if he were about falling down ; because, when a person is seized with the complaint, even with his eyes closed, or if he happens to be blind, he appears to himself to be turning round. I have observed also, that the senses are somewhat deranged ; because, as Sauvages properly remarks, in this disease not only do the sight or hearing, but also the touch and internal senses, become morbidly affected.

* Some authors class vertigo among the diseases of impaired motions. Ludwig, in particular, refers it to the comatose affections ; nor does Platner differ from him. They both define this affection to be *the sudden derangement or obscuration of the senses, which is particularly remarkable in the organs of sight and hearing*. But this definition does not convey a sufficiently clear idea of vertigo, nor does it directly point out what vertigo has in common with the comatose affections, entitling it to rank with the latter. Sauvages, again, thought proper to refer vertigo to the class of the *vesaniæ*, and particularly to the order of the *hallucinationes*. For, according to him, vertigo is a *hallucination, in consequence of which the surrounding objects, although at rest, appear to the patient to be in motion, or turning round*. But if the word *hallucination* is applicable to the mind, I do not see why vertigo should be placed among the hallucinations, as the persons seized with it know very well that the rotatory motion is not real, but only apparent ; nor do they in this respect form a false judgment, making it referable to the mental illusions. But it may be said, that they do not err in point of judgment, but in imagination, or rather in sensation. Whatever, in short, be the nature of their illusion, it is such as the mind immediately discovers, and therefore cannot be ranked among the *vesaniæ* and hallucinations. Add to this, that the patient's staggering,

and being afraid of falling, together with the obscuration of the sight, tinnitus aurium, and other symptoms which frequently occur in vertigo, are not errors of fancy and mental hallucinations, but actual complaints, as I shall afterwards make appear more plainly. Be this as it may, I do not trouble myself much concerning the arrangement of diseases into classes. I only considered it as proper to treat of vertigo after epilepsy, on account of the former appearing to be a very slight degree of the latter, and having some affinity to it.

294. Three particular varieties of vertigo are generally established. The first is *simple vertigo*; which takes place, as I have already observed, when the external objects, or the patient's body only seem to turn round and totter. The second takes place, when, in addition to the apparent rotation or agitation of the surrounding objects, likewise the sight becomes obscured or defective, or at least when the things which seem to be in motion appear of a dark colour, or, lastly, when the eyes, after various colours have been seen before them, are overspread with darkness. This species goes under the particular denominations of *scotodinia*, *scotomania*, or, *vertigo tenebri-cosa* *. Lastly, the third occurs when the vertigo rises to such a height that the patient is obliged to lay hold of whatever is in his way, to prevent tumbling down. It is named, therefore, *vertigo caduca*, and is considered as being very nearly allied to epilepsy. Nay, this last degree of the

complaint is considered by some as a slight epilepsy, in the same manner as a very slight attack of epilepsy is considered in the light of a vertigo. Hence we may infer, that in vertigo the eyes are not always affected, and that when they are, they alone do not labour under the complaint, but the brain and other parts also, particularly the muscles which support the body; and, therefore, that the staggering of the body, which is sometimes so great as to cause the patient to fall down, is not always to be derived from the obscuring of the sight, and the fear of falling down arising from it, as a person might be apt to suppose. Moreover, in this disease, the other senses also are very frequently somewhat affected; for the idea of the turning round of the body, or external objects, is generally accompanied with tinnitus aurium, or dulness of the hearing, and an imperfect sense of touch.

* *Scotodinia*, *scotodinos*, and *scotomania*, are synonymous terms. *Σκότος*, *tenebræ*, and *δίνη*, *vortex aquarum*, explain the origin and signification of the term. *Σκότωμα*, *caligo*, *obscuritas*; hence *scotomania*.

295. A variety of theories concerning the proximate cause of vertigo have been brought forward by pathologists; but, in my opinion, the subject still remains in its former obscurity*. Nor has Gaubius dissipated the darkness in which it is involved, by his observations. He observes: “In the same manner as the viewing of objects

which are turning round, or otherwise thrown into rapid motion before our eyes, as well as the turning round of the head and whole body, and looking down a stupendous precipice, occasion vertigo in people unaccustomed to them ; it is probable that the internal causes also act in a manner not dissimilar*.” But it still remains to be explained in what this consists. For as we do not know what happens to the nerves and medulla of the brain in our sensations and perceptions, properly so called ; we are equally ignorant of the change which takes place in the brain, retina, and nerves, of the other senses, from the external causes just mentioned, which occasion vertigo in those who are unaccustomed to them. At most it may be conjectured, that in vertigo, sometimes the crystalline lens, from some unknown cause, is rendered oblique, inclined, or irregularly agitated, sometimes that the ball of the eye, in consequence of its muscles being irregularly and spasmodically contracted, undergoes some change of its figure and position, sometimes that the retina, optic nerve, brain itself, and the nerves subservient to hearing, touch, and motion, are affected in the same manner as in the spasmodic and convulsive diseases. For if the particular phenomena attending vertigo be considered, and the causes exciting it are thoroughly examined, scarcely any thing will be found which

does not indicate a nervous and convulsive affection.

* For the speculations of ancient pathologists concerning the proximate cause of vertigo are so improbable and fanciful as to deserve no kind of credit. Thus in the present advanced state of our knowledge of physiology and anatomy, who could be satisfied with being told that the proximate cause of the complaint is a *spiritus flatuosus*, or the *fluids converted into vapour by heat*, or *ataxy of the spirits*, or the *passages of the animal spirits having become distorted*, or a *motus saltatorius* of the animal spirits in the eye? Who can conceive the idea of the animal spirits in the brain or orbit of the eye being thrown into a circulatory motion, while, if in fact they exist at all, it is altogether rational to suppose that they are contained in their proper tubes, and moved in them according to the laws of other fluids? Who can assent to the hypothesis of Juncker, which supposes the nerves to proceed from the membranes of the brain, and motion and sense to be derived from tension of the membranes and nerves, in order to afford some explanation of vertigo, by ascribing it to a spasmodic tension of these? Nor is Sauvages' hypothesis, although more highly finished, involved in less difficulty: for it supposes that a retrograde motion of the blood takes place in the retina, in the ears, and in the organs of touch. Certainly no one can deny, that from the intervention of certain causes the blood may regurgitate from the veins to the small arteries, and thence into the larger branches. But who will ever be able to demonstrate that this is really the proximate cause of vertigo? This intirely rests on hypothesis only; nor does it deserve more credit than the other groundless opinions which have been started. For whoever should assert that the ciliary circle is contracted, and the crystalline lens therefore rendered oblique, or that the muscles of the eye are irregularly stretched, in order to explain the circulatory motion and irregular agitation of the surrounding objects, would point out no other cause of vertigo but spasm and con-

vulsions of these parts. But who to a certainty can affirm that the ciliary circle is possessed of irritability, and therefore of contractility? And even if it did possess it, that by means of its contraction it could render the crystalline lens oblique, and pervert the optical axis?

† *Instit. Pathol. Medic.* § 721.

296. All those things which compress, agitate, irritate, and weaken these parts (295.), whether they act immediately upon them, or by consent, may be considered in the light of remote causes of vertigo. To this place, therefore, may be transferred all those things which were enumerated under the name of *remote causes* when I treated of the convulsive affections, and particularly of epilepsy. The chief of them are, old age, the winter-season, rainy weather, blows on the head, fractures or depressions of the skull, exposure to a scorching sun, excessive exercise, sitting in the fore-part of a coach, excessive eating, flatulent food, a fit of anger, the bath, immoderate excretions, the suppression of a usual evacuation, fasting, particularly in bilious habits, the fumes of quicksilver, the effluvia arising from charcoal, from ditches, and fermenting wine or beer, assailing people of a sensible habit, cold feet, the unusual or immoderate employment of wine, various liquors, tobacco, opium, daniel, and other narcotic substances; of which some act, as appears, immediately upon the brain itself,

others upon other parts ; in such a manner, however, that the brain is affected by consent, or too great a determination of fluids takes place to the head. Among the parts by consent with which the head is affected, the chief is the stomach, in which, most frequently, the cause of vertigo is contained. For, either in consequence of its being empty, or abounding with acrid and vitiated fluids, by which irritation is produced, or overloaded, vertigo is often excited, which however immediately ceases, either on food being taken moderately, or in consequence of the fordes and acrid fluids which are in it being expelled, or on its being freed from the load with which it is oppressed. Hence it appears why hypochondriacal patients are so frequently liable to vertigo. For in such persons the *primæ viæ* generally abound with crudities and vitiated fluids ; the stomach and intestines are distended with flatus ; the circulation of the blood proceeds languidly in the abdominal viscera, and particularly in the *vena portarum* ; hence spasms, and an unequal distribution of the blood ; hence too great a determination of the fluids to the head, or the irritation, which is readily propagated to the brain by consent with the *par vagum nervorum*.

297. Besides these differences which I have already mentioned (294.) as proceeding from the greater or lesser degree of the complaint, I must not neglect another proceeding from the seat of

its origin, and which is in common to it with most other diseases, namely, the division into idiopathic and sympathetic vertigo. It is again divided by some into *vertigo of the brain*, *vertigo of the sight*, and *vertigo of the sense of touch*, and so forth. According to the variety of the causes, like other diseases of the head in particular, it assumes various names, which are derived from the blood, from serum, from wounds, blows, poisons, from intoxication, from the stomach, hypochondres, and uterus, from excessive sensibility, from inanition of the vessels, &c. of each of which it is unnecessary to make particular mention. It is also sometimes combined with other diseases, or is a symptom of them. Hence it is denominated *complicated*, or *symptomatic*.

298. The disease is readily discovered from the symptoms already enumerated. Nor can its causes remain hidden, if we attend to the marks of them which have so often been laid down. Omitting these, therefore, I shall pass to the prognosis. Vertigo is more or less severe, according to its degree. The species named *tenebricosa*, and that named *caduca*, is attended with greater danger than that which is simple, as also the idiopathic than the sympathetic; but the least dangerous of them all is, the *hypochondriacal* or *hysterical* species. But the danger in the more violent complaint, which attacks the patient without any manifest cause, arises from the circumstance that

young men labouring under it are apt to fall into epilepsy, while those who are farther advanced in life, or arrived at old age, are apt to be attacked with apoplexy. A headach coming on in vertigo occasionally resolves the complaint. But, on the other hand, a vertigo supervening on a headach, denotes an unfavourable termination. Hence it has been observed by Hippocrates, “that the species of vertigo named *tenebricosa*, if it be attended with pains, terminates in madness, is difficultly removed, and chiefly hostile to old people*.” Likewise the species which are combined with other diseases, or those which are symptomatic, are considered as being bad, as we discover from the prognostics of Hippocrates. “A person labouring under the *vertigo tenebricosa*, and impatience of light, accompanied with sleep and great heat, is fast approaching his death†. Small tumours of the ears in chronic diseases, if an epistaxis occasionally occur, and a *vertigo tenebricosa* come on, prove fatal‡. Fevers accompanied with vertigo, together with an affection of the small intestines, or without it, threaten death||.” But when vertigo comes on at the beginning of the disease, it frequently is the forerunner of an epistaxis, or vomiting. Hence in the *Coacæ Prænotiones* it is observed: “The *vertigo tenebricosa*, when occurring about the beginning of diseases, is resolved by an epistaxis coming on§.” And elsewhere it is said: “If a

patient labouring under a fever which is not fatal, mention that his head is pained, and that his sight is obscured; and if at the same time a gnawing sensation be felt at the cardia, it is a proof that a bilious vomiting will come on ¶.

* *Prædict.* l. 2. n. 155. † Hippocrat. aph. 15. sect. viii.

‡ *Coac.* n. 105. || *Ib.* n. 106. § N. 341. ¶ N. 144.

299. Moreover, the cure of the complaint according to the variety of the causes, is to be collected from the former chapter, upon the Convulsive Affections, and particularly from what has been said of the treatment of epilepsy. Peacock's dung and wild valerian-root are considered as specifics. Among the cathartics the most efficacious are said to be, the *pilulæ de succino Cratonis*, and mastichina. In the vertigo proceeding from the motion of a carriage or ship, Gorter recommends paregorics and agreeable acids, as theriac, and Rhenish wine, with citron or lemon juice, and a little of the syrup of diacodium*. Others propose wine mixed with sea-water, to prevent the vertigo, which generally distresses people, unaccustomed to the motion of a vessel, during a sea-voyage. With regard to the diet, it ought to be calculated to correct the morbid causes.

* *Dissert. de Vertig.* § xxxiv.

C H A P T E R X.

OF OPHTHALMIA, AND OTHER DISEASES OF
THE EYE.

300. THE eyes are liable to a variety of serious complaints, many of which are treated of in works upon surgery. But, omitting those which are cured by operations alone, I shall give a short account of ophthalmia, and some other complaints of the eye, which frequently require the physician's aid. The name *ophthalmia* has a more extensive signification ; and although some consider it as equivalent to *oculorum morbus* *, the old practice has still prevailed, and it is generally employed to denote the inflammation of the coats of the eye, particularly those externally situate. Some of the moderns prefer naming it *ophthalmitis*.

* Ὀφθαλμὶς, *oculus* ; therefore Ὀφθαλμία is the same as *oculorum morbus*. Celsus names it *lippitudo*. Sauvages divides it into several species, some accompanied with redness and pain, but without inflammation, and others accompanied with inflammation. When I mention the word *ophthalmia*, adhering to its ancient signification, I mean nothing else than inflammation of the eyes. For I am not disposed to change the ancient names merely from caprice.

301. Ophthalmia, as I have already said, is divided into three degrees or species, if we follow

the common division employed by authors. The first degree is named *taraxis*, signifying, as it were, *turbatio*, from *Ταρασσω*, *turbo*. It occurs when a slight degree of redness or inflammation betrays itself in the tunica adnata or conjunctiva. In it the eye is more moist, slightly warm, and red, and begins to be somewhat painful. And that generally happens from evident causes, the scorching heat of the sun, fire, smoke, wind, dust, drinking wine, and the like. But so slight is that inflammation, that Galen considered *taraxis* rather as the beginning of inflammation than real inflammation. Hence several, both of the ancients and moderns, among whom are Piso * and Juncker †, have named it *spurious ophthalmia*. The second degree is constituted by ophthalmia, properly so called, in which more manifest inflammation appears, the eyes are redder, hotter, and more painful, and are not only moist, but pour forth tears abundantly; and, moreover, the causes which have given origin to the disease are generally more severe. Lastly, the third degree is said to be present, when not only the adnata, but also the sclerotica, become so swelled from inflammation, as to be raised above the cornea, leaving, as it were, an hiatus in it. Moreover, in this species of inflammation of the eye, the eyelids are generally turned in, and a severe headach and watering come on. It is named *chemosis*, from *Χαίμν*, *hiatus*. I cannot help wondering

that Juncker supposed that this more severe degree of ophthalmia could arise from the ferous fluid, and therefore referred it to the *spurious ophthalmia*.

* *De Morb. Cogn. et Cur.* l. i. c. 26. n. 40. † *Conspect. Med. Theor. Pract.* Tab. xxiv.

302. Others express these degrees or varieties of ophthalmia (301.) in a different mann; they name the first *ophthalmia levis*; the second *gravis*; and the third *gravissima*. And there are some, who, by the name *chemosis*, understand particularly that inflammation of the eyes which extends to the internal membranes of the eye, and the contained fluids. Those who do not take it in that, but in the former acceptation, are obliged to bestow another name upon the inflammation which affects the internal parts of the eye, namely, the choroid coat, the uvia, retina, and capsule of the crystalline or vitreous humour. Hence Platner has named it in particular *phlegmon* of the eyes. It is attended with the most severe symptoms, namely, intolerable pain and heat of the head and eyes, violent fever, watching, sometimes delirium, impatience of light, or total aversion of it, contracted pupil, and a copious discharge of tears. This violent inflammation of nearly the whole eye, particularly when it originates from a sudden cause, generally attacks the eyes with such violence that it appears, as it were, to force them

from their sockets. On account of the protuberance of the ball, the eye being dependent, it is named by the Greeks, as Celsus tells us, Προπτωσις †. In this very severe species of the complaint, when the retina is affected, Pitcairn thinks that this appears from the muscæ volitantes, dust, and other imaginary appearances, and spots floating before the eyes ‡. But Porterfield, in opposition to the opinion of Pitcairn, contends that these very appearances may also take place in consequence of alterations and faulty conditions of the aqueous humour.

* *Instit. Chirurg.* § 281. † *L. vi. c. 6. n. 8.* ‡ *Elem. Medic. Physic. Mathemat. c. xiii. § 2. 3. 4.*

303. These observations apply to the *genuine* and *sanguineous ophthalmia*, which some name likewise *humida*, from the quantity of tears. I now pass to that which is commonly named *ophthalmia notha*, and *sicca*. It is named spurious, in the first place, because the eye-lids and their angles are affected rather than the ball of the eye, and, next, on account of its being occasioned by acrid serum or lymph; and it is called dry, on account of its being accompanied with less watering. Of this last, two occur, one attended with itching, and the other without it. That which is accompanied with itching, is either attended with a slight discharge of salt and acrid humour, and is named *psorophthalmia*; or in it there is no kind of discharge of fluid, but the eye-lids are only red, and affected with

flight pain, and a sense of weight ; and then it is named *xerophthalmia*, or *lippitudo sicca*. But that kind of the disease which is unaccompanied with itching, and is occasioned almost merely by hardness of the eye-lids, is commonly named *sclerophthalmia*, or *lippitudo dura*. All these species of spurious ophthalmia proceed from the lymph, which ought to moisten and lubricate the eye-lids, having acquired an acrid or salt disposition, and become viscid and tenacious : they are therefore named *lymphatic* or *serous*. But as the course of the genuine and sanguine ophthalmia is short and acute, so that of the spurious species is of longer continuance, in which circumstance, independently of the other symptoms which I have mentioned, they principally differ from one another.

304. Hence it appears what the proximate cause of these affections is ; namely, genuine or spurious inflammation in any way affecting the eyes. But the remote causes are either those in common to other inflammations, which I have already enumerated in the treatise on inflammation ; or they are peculiar to the complaint, as a bad state of the blood, the febrile matter being carried to the eyes, the variolous, scorbutic, strumous, and venereal acrimonies, or that of itch ; wounds, blows, the heat of the sun, wind, smoke, acrid bodies falling into the eye, and certain seasons of the year, as Hippocrates

has observed, when he says: “ If the winter be dry and cold, and the spring rainy and hot, acute fevers, ophthalmia, and dysentery necessarily arise in the summer-time, particularly apt to attack women, and men of a moist habit of body *. But if the winter be warm and rainy, and the spring dry and cold, ophthalmia sicca takes place †.”

* Aph. xi. sect. iii.

† Aph. 12. sect. iii.

305. According to the difference of the nature and degree of violence of the inflammation, and according to the variety of the causes, manifold distinctions of ophthalmia arise, which are partly already noticed, and are partly self-apparent, particularly when the causes are considered, and the adjunct added, as *ophthalmia magna, parva, acuta*, and *lenta*, or that which is *primary, secondary, symptomatic, syphilitic, scorbutic, scrofulous*, &c. Nor is it a difficult matter to distinguish these varieties by attending to the symptoms already enumerated, and a review of preceding circumstances. It is of great consequence, however, to inquire whether the disease arises merely from an external and evident cause, or any morbid condition of the blood has preceded its appearance, which may be easily learnt from the patient or his friends. Next, whether the inflammation affects merely the external parts of the eye, or the internal parts also. If the first is the case, the pain, pulsation, and swelling, are generally

propagated to the neighbouring parts: if otherwise, all these symptoms are more severely and more deeply felt. Nay, sometimes a particular itching is excited in the nostrils and palate, which is succeeded by frequent sneezing, in addition to all those symptoms which I have already enumerated in the description of every species or degree of the complaint. And because these complaints, like other diseases, go through certain periods, our attention ought to be carefully directed to these, particularly to the tears. For, when the eyes begin to grow red, and discharge an abundance of thin fluid, it is commonly considered as the commencement of the complaint; when all the symptoms are aggravated, the *increase* of the complaint is said to take place; and its *height* comes on when the humour discharged becomes more bland and thicker, so as to be apt to glue the eye-lids together; and, lastly, the *declination* commences when all the symptoms remit and disappear.

306. Sennert mentions* that the species of ophthalmia which approaches to that named *taraxis*, is more easily cured than that which comes nearer to the *chemosis*. For the chemosis, as well as the internal ophthalmia, which, as I have already said, has been named by Platner *phlegmon* (302.), is not only difficult of cure, but also threatens suppuration and gangrene, or, in consequence of a cataract, staphyloma, or amaurosis being induced,

the total loss of sight. That which supervenes after wounds and contusions in the head is attended with most danger, as indicating inflammation of the brain and its membranes, and portending death. In general, that which proceeds from a morbid condition of the internal parts of the head is more severe and dangerous than that which is occasioned by an idiopathic affection of the eye. Moreover, if the pain continue long, and yield to no remedies, it affords a very bad symptom; for it seems to proceed from a cause which cannot be resolved, or which is of a corrosive kind, or has a rapid tendency to supuration, in consequence of which the vessels and coats of the eye may be either burst, or eaten through, or ulcerated, particularly the cornea lucida; or congestions and indurations may take place internally, occasioning the effusion and breaking out of the humours, or giving rise to hypopyum, and other complaints, or actual blindness. Sometimes ophthalmia is of very frequent recurrence, particularly when remarkable vicissitudes of the weather happen. Frequently the inflammation passes from one eye to the other, which must be attended to in order that it may be as far as possible prevented. Instances are likewise recorded which have induced some to suppose, that ophthalmia is sometimes propagated by contagion, which equally requires being at-

tended to, that we may endeavour to discover and prevent its cause. Likewise chronic ophthalmia, particularly the scrofulous, scorbutic, and venereal kind, occasion great inconvenience, for they are all of them cured with the greatest difficulty. The venereal species, particularly if it proceed from the imprudent suppression of gonorrhœa virulenta, unless a very efficacious method of cure be adopted, increases with great rapidity, destroying the ball of the eye, and very quickly occasioning blindness. Likewise the ophthalmia which supervenes when lues venerea is present, although it does not proceed to blindness so rapidly, is attended with much danger, and proves no less obstinate and formidable. The spurious and œdematous species are attended with less danger, but are more tedious and obstinate. Hippocrates has observed: "That it is a good sign when a person labouring under ophthalmia is attacked with a looseness †." In the *Coacæ Prænotiones*, again, it is observed: "When a person labours under ophthalmia, the complaint is resolved by fever supervening: if it do not produce this effect, however, blindness or death are to be apprehended ‡." When a headach comes on in ophthalmia, and continues long, there is reason to suspect that blindness will follow ||.

* *Med. Pract.* T. 1. *oper.* T. 2. l. 1. P. 2. sect. 2. c. xii. p. 270. † *Aphor.* 17. sect. vi. *et Coac.* N. 224. ‡ N. 222. || N. 223.

307. The indications in every species of ophthalmia are the same as in other inflammations, namely, to prevent too great a determination of blood to the eyes, to resolve the stagnant humours, and to allay and correct their acrimony. Nor are they to be otherwise fulfilled than by those very remedies which were elsewhere proposed for the cure of inflammation in general ; only keeping in view the causes from which the disease proceeds, and the part affected. But there are several things to be observed in the treatment of ophthalmia which are to be considered as in a manner peculiar to it. First, it is necessary to keep the patient quiet, and in a dark place, completely excluding the light, to prevent the exercise of the eye-sight. Nor is it proper to bind up the eyes when affected with ophthalmia, particularly if an acrid or thick humour is discharged. For there is a risk of the humour which ought to have been discharged, in consequence of being retained, occasioning ulceration of the palpebræ and cornea, or of the palpebræ becoming glued together, or to the eye, in consequence of a cicatrix being formed ; which disease is named *ancyloblepharum*, and is to be removed by surgery alone*. Sometimes, however, it may be serviceable, especially after a surgical operation, to bind the eye, which ought to be done likewise to the sound eye, that that

which is affected may not be thrown into action, and receive injury from the motion of the other. The inflamed eye must likewise be secured against the air, and all the causes or medicines which are apt to excite a flow of tears carefully avoided.

* Concerning this operation the reader may consult Platner, *Instit. Chir. Rat.* § 331. and the works of other writers on surgery.

308. The slightest degree of ophthalmia, or that named *taraxis*, is frequently cured merely by rest and excluding the light, or by the extraction of any foreign body which may have insinuated itself between the eye and the palpebræ. Sometimes, however, if plethora be present, or a bad state of the fluids, bleeding, purging, and other remedies, opposed to the faulty condition of the blood, become requisite. Occasionally at the very beginning it is serviceable, if the cause of the complaint be relaxation of the vessels, or thinness and heat of the blood, to foment the eye with a rag dipped in cold water, or with the white of an egg beat up with the water of white roses, or with water mixed with a little vinegar, the eyelids being closed. On the other hand, if plethora and density of the blood, if irritation and tension of the vessels, have occasioned the complaint, or if the disease have been of considerable duration, we must abstain, with the utmost caution, from cold and repressing remedies. For by means of them

the taraxis is easily converted into phlegmon, which Platner observed to happen in consequence of an empiric having rashly employed cold water *. It is then better to employ tepid water, women's milk, a decoction of the seeds of fleawort, barley-water, and the like, in order to assuage the irritation, pain, and spasm. It may be understood that cold and repressing remedies are admissible, if the redness of the eyes be accompanied with hardly any pain and heat; for in the case of laxity of the vessels, and thinness of the blood, both of them are generally absent. But when the pain and irritation requires assuaging, sedative, and emollient remedies, it is attended with the greatest advantage to apply to the eyes, with the eye-lids shut, the pulp of sweet apples roasted and beat up with milk, so as to form a very soft poultice. If the complaint proceed from an internal cause, Platner † recommends the common collyrium of prepared tutty, and a little calcined vitriol, rubbed together, with some fennel or rose water. But all those remedies which are apt to irritate the eye ought to be omitted in this disease, particularly saline things or styptics: for besides the irritation by which the complaint is aggravated, they may occasion opacity of the humours. For, in consequence of the late experiments of the ingenious Michael Troja, surgeon in ordinary to Ferdinand King of Sicily,

it has been ascertained, that from the application of saline or acid remedies to the eye, the crystalline lens, or its coat, loses its pellucidity, on account of which an artificial cataract is induced. We must not, therefore, be over ready in the employment of saline or metallic remedies, although in very common use. If the disease proceed from the inclemency of the weather, or from the perspiration being checked, or from catarrh, a gentle flow of the sweat ought to be promoted in the morning. It is necessary to attend to this, lest astringents, as alum, sugar of lead, and its extract, tutty, and the like, be rashly employed; and, if it ever be done, it ought to be practised with the utmost caution when the disease is beginning, or has already begun, to take a favourable turn. They require the same caution which I have prescribed in the employment of cold applications. And it is proper to observe the same limitation in the other species of ophthalmia.

* *Instit. Chir. Rat.* § 286. † *Ibid.* § 291.

309. In ophthalmia properly so called, as also in chemosis (301.), and still more in phlegmon (302.), bleeding,—according to the maxim of Hippocrates, “that ophthalmia is removed by venesection *,”—is absolutely necessary. It therefore becomes necessary immediately to draw blood from the veins of the arm, or foot, from the jugulars, nay, from the temporal artery itself, repeating it according to the degree of violence of

the disease, and the patient's strength; to fix cupping-glasses upon the back, neck, and behind the ears; to apply leeches to the temples and about the os petrosum; to produce pretty brisk purging by means of antiphlogistic remedies, and frequently to immerse the feet in hot water. But if little advantage be derived from these remedies, and the vessels in the adnata appear large and turgid, they ought to be raised by means of a crooked needle passed under them, and divided with a proper lancet, in order that they may pour out as much blood as possible, the eye in the mean time being fomented with tepid water, that the blood may flow out the more readily. When the adnata itself becomes so much swelled as to choak up the eye, as it were, by its compression, where it invests the inner surface of the lower palpebra, it should be deeply scarified, in order that a detumescence of it may be occasioned by a discharge of blood. Thus the suffocation of the eye is prevented, and the risk of occasioning staphyloma of the sclerótica, by the cutting of the adnata, which covers the eye, is avoided. Nay, if even thus it do not subside, and there be occasion for a more efficacious remedy, the best surgeons advise the cutting of it out to as great extent as possible; and this operation is chiefly admissible in the ophthalmia proceeding from gonorrhœa and severe syphilis (305. 306.). It is

affirmed that much benefit is derived from the application of two leeches to the lower part of the orbit, near the external angle of the eye, care being taken to allow the blood to continue flowing for some hours after the leeches have fallen off †.

* *Epid.* l. vii. † *Comment. Lips.* vol. ii. p. 400.

310. When the complaint proves obstinate, and when the patient's habit of body is full, or the fluids bad conditioned, after the general evacuations having been employed, we must quickly have recourse to cantharides and the cautery. The former are applied to the nape of the neck, behind the ears, or between the shoulders, to occasion ulceration. Nay, some advise their application to the temples or forehead, if an uneasy heaviness be felt there. The latter are burnt in under the occiput. The most powerful kind of cautery is a seton inserted in the back-part of the neck. This draws off a great quantity of humours, and occasions a more extensive suppuration ; and therefore, as it is more uneasy to bear, it seems more efficacious in occasioning revulsion. It is very frequently employed in the neighbourhood of Milan ; nor are they content with a slight one ; for they generally extend it as far as three or four inches. There is scarcely any severe disease of the eyes or head in which they have not recourse to this surgical operation. In consequence of this indiscriminate practice, it cannot but happen that it is sometimes employed unne-

cellarily, sometimes without effect, and not always without injury. A skilful and bold oculist mentioned to me candidly, that after having made a good many trials of it, without being attended with much success, he had almost intirely laid aside this practice. On the other hand, another of not less experience and skill assured me, that if any hopes of a cure remain in severe and chronic diseases of the eyes, or in those which are apt to return, they rest intirely upon the employment of a seton, as he had often ascertained from his experience. From which facts we may collect, that a seton, like other considerable remedies, unless it be employed with caution, is neither a certain nor an harmless remedy in such diseases. The species of seton which is formed in the lobe of the ear is milder and safer. When it is necessary to derive the humours from the eyes more powerfully, after the third day of perforating the lobe of the ear, the fibres of spurge-laurel and black helebore are inserted, and renewed every day. For in this manner the hole is irritated, so as to suppurate and discharge much humour. Cauteries are not only used in the parts already mentioned, but are likewise attended with advantage in the arms, and contribute greatly to overcome or prevent the recurrence of chronic ophthalmia. It is particularly serviceable in the case of recurrent ophthalmia, which is kept up by a peculiar acrimony of the fluids, as that of

small-pox, gout, herpes, itch, and the like. It is also attended with singular advantage to keep the belly open. Nay, in consequence of purging it pretty briskly, the blood is attracted copiously elsewhere, the swelling of the face subsides, and the red vessels, which were too much distended, more readily contract and empty themselves. This mode of purging the belly is frequently followed by a most complete cure.

* Van Swieten on Boerhaave, § 396.

311. We must at the same time obviate any peculiar dyscrasy of the blood which may be present, by remedies calculated for the purpose. Excessive heat, and a phlogistic diathesis of it, are opposed by whey, decoctions of the cooling and cold herbs, barley-water, and that of oats, with the addition of nitre, oxymel, and other antiphlogistic remedies, repeatedly mentioned, which may also be employed when the complaint proceeds from the variolous acrimony. A scorbutic taint is corrected by means of a vegetable diet, antiscorbutic specifics, whey, and milk, especially goat and ass milk; which last, if it be used in great quantity, and for a length of time, has a wonderful effect in blunting and correcting every kind of thin and subtile acrimony. Mercury, guaiac, and sarsaparilla, possess the power of checking and expelling the venereal virus. But in the very violent ophthalmia occasioned by the rashly checking of a gonorrhœa, or by the venereal virus being carried to the eyes

(309.), the vigorous rubbing in of mercurial ointment effects a complete cure. The decoctions of the woods which are named *depurative* and *sudorific*, in other morbid states of the fluids, requiring being attenuated and resolved, produce an excellent effect. Similar remedies are likewise serviceable when the disease is occasioned by a strumous virus. In that case, however, the following remedies are particularly recommended, æthiops antimoniatum, extract of hemlock, millipedes, the root of fig-wort, chalybeates, gentle cathartics, and so forth. Nor is bathing of the whole body, and the copious drinking of medicated waters, as being calculated for powerfully changing the intire system, unattended with advantage in preventing the disease, employed according to the varieties of its causes. But when the disease at length goes off, the eyes may be strengthened with proper collyria, among which the chief are, cold water, or that which is altered with ignited steel, or some eye-wash, to which a little spirit of wine, or wine itself, has been added, applied rather to the eye when closed, than dropped into the eye itself. For thus imprudently irritating it might be apt to recall the complaint.

312. Nearly in the same manner must we treat the other cases of ophthalmia. If there be any difference, it intirely depends upon the flighter degree of inflammation with which they are attended. But on its being at length discus-

fed, the remainder of the cure is performed, partly by means of internal remedies, opposed to the peculiar dyscrasy of the fluids, partly by external. In the pſorophthalmia, the itching and heat are allayed by mucilages, by the feeds of mallows, marsh-mallows, flea-wort, quinces, the water of the *ſperma ranarum*, and by a ſolution of gum-arabic, the eye-lids being frequently waſhed with them. In the ſclerophthalmia, after employing thoſe things which are calculated for removing inflammation, it is attended with the greateſt advantage to foment the eyes with warm emollient waters. When the diſeaſe is to be reſolved and diſcuſſed, it is neceſſary to add ſome camphor or ſaffron to the water of elder-flowers, fennel, eye-bright, and greater celandine, with which the eyes may be occaſionally moiſtened. Sometimes the exceſs of the pain abſolutely requires a doſe of opium. The *ſief album* of Rhafes, which contains opium, is generally preferred to other remedies, and is rubbed up with theſe waters by way of a collyrium. It may frequently happen that in theſe ſpurious ophthalmiæ the margins of the eye-lids, and particularly the glands of Meibomius, may become affected, nay, even ſlightly ulcerated, and pour out pus, in conſequence of which the adnata alſo ſuffers ſomewhat. When that happens, the eye-lids grow red, ſwelled, painful, and itchy; and during ſleep are glued together,

and become furrounded with dry matter. That affection proves obstinate; nor is it ever discussed, unless the ulcers of the margins of the eye-lids be well wiped and dried, and the glands recover their tone and strength. In which case, for the complaint is at once discovered on inspection, I cause the eyes and eye-lids to be very carefully washed and fomented several times a-day for two or three days with luke-warm barley-water, that all remains of the acrid humour and pus may the more readily pass off, and that the irritation and heat may be as much as possible allayed. After which the vitriol of copper, dissolved in a large quantity of water, ought to be applied to the eyes when shut, in such a manner that the margins of the palpebræ may be wet, without the ball of the eye being touched, excepting very slightly *. But in proportion as the discharge of glutinous humour and the redness decrease, and the eye becomes more sensible upon the application of a remedy, we must gradually diminish the dose of the vitriol, and employ it less frequently, until all the ulcers have healed up. For in this manner the ulcers are cleaned, become dry, and the relaxed parts are strengthened. Others employ wine into which brass has been poured, and occasionally wet the eye-lids with it. Lastly, if merely laxity of the vessels and glands remain, then tutty, or the *coagulum*

aluminis, as it is called, are to be employed. In this manner have I frequently observed the most obstinate cases of ophthalmia very quickly removed. But if the ulcers, in consequence of their continuance, have become foul and deep seated, some prescribe the cautious application of the *lapis informalis*, or *lapis divinus*, or the *aqua, viridis* of Haartman, and next recommend honey. But in the employment of corrosive and caustic remedies, care ought to be taken to prevent the eyes from receiving any injury, which is effected by immediately placing a cotton rag wet with cold water upon the margins and internal surface of the palpebræ, to be removed every five or six minutes.

* I generally employ this, or a similar formula :

Rec. Vitrioli cyprii s. p. g. iv. solv. in aq. Euphrasæ unc. vi. Deind. trajic. per chartam emporetic. Liquori trajecto add. camphor. rasæ in aq. reg. hung. drachmis duabus solutæ grana duo, vel tria. Ter vel quater in die tela linea tenuissima ex hoc collyrio tepido expressa oculis subclausis imponatur, sic ut inter palpebras quidem aliquid liquoris ab uno ad alterum angulum se diffundat, non vero totum oculum perluat. Augeri, aut minui dosis vitrioli, et camphoræ potest, prout major, vel minor detergendi, et exsiccandi, resolvendique erit indicato; imo omitti etiam potest camphora, ubi non bene feratur, aut ejus facultas supervacua videatur.

THE PTERYGION, OR UNGUIS.

313. HITHERTO I have been speaking of the universal diseases of the eye *, I shall now pro-

ceed to those which seem peculiar to certain parts of it. The first which comes under consideration is the *pterygion*, or little wing, as it were, which is named by Celsus *unguis* †; namely, a particular membrane proceeding generally from the greater angle of the eye, and adhering firmly to the *membrana conjunctiva*, thin, somewhat pellucid, fibrous, and tricuspidated, extending from thence with its apex to the *cornea lucida*, and sometimes covering the pupil in such a manner, as either to obscure the sight, or deprive the patient of it intirely. If it be thick, and overspread with turgid veins, it is commonly named *pannus*, or *panniculus*, and by the Arabians *sebel*. Sometimes this complaint becomes malignant, and approaches to the nature of a cancer. In that case the membrane grows out farther, is rendered thicker and harder, becomes of a black or livid colour, and is affected with an acrid pain. Its cause seems to be, the infarction and extension of the *caruncula*, or little membrane, placed at the greater angle of the eye, in consequence of which a relaxation in the structure of the fibrils taking place, the nutritious fluid running into them always distends and elongates their terminations by its impetus.

* It was not my intention to treat of all the universal diseases of the eye, but of the chief of those which generally fall under the physician's observation. For had I been willing to have pursued them all, I must have been under the necessity of exceeding the bounds proposed. I shall subjoin to them,

however, *hydrophthalmia*, *exophthalmia*, or *dropsy of the eye*; of which there are two kinds, one external, the other internal. The external one takes place when the aqueous fluid is collected under the adnata, occasioning an œdematous swelling, and a considerable degree of redness in it. The internal happens when the aqueous fluid is so much increased that it renders the ball of the eye larger and fuller. Both complaints are easily discerned on inspection. They are cured like other partial dropsies, but principally by the operation of paracentesis. See a work entitled *Breve Trattato delle Malattie degli occhi de Domenico Billi Cerurgico d'Ancona*, ed. 1749, cl. ii. c. vii. p. 83. to 85. : where also will be found, some excellent observations concerning the other diseases of the eye, both universal and partial.

† Woolhouse supposes that in *Ægineta* the word *pterygion* is to be translated by *ungula*, as the former has nearly the same colour as the nails of animals.

THE ONYX AND HYPOPYUM.

314. There is another disease of the eye, which from its figure has been called *unguis*, and in Greek *ὄνυξ*. It takes place when a collection of pus is formed between the lamellæ of the cornea, resembling a nail, or rather the parings of nails. But if the pus be collected beyond the cornea in the aqueous humour, it is named *hypopyum*. Aetius * alone, and a few others after him, have made the proper distinction between the pterygium, onyx, and hypopyum.

* Lib. viii. c. 30.

THE CURE.

315. WHEN the pterygium is recent, thin, and of inconsiderable extent, it is sometimes cured merely by gently discussing and cleansing remedies, as white sugar, honey, the powder of the bones of the sæpia, egg-shells macerated in very strong vinegar, and afterwards dried and reduced to a very fine powder. If these more gentle remedies prove insufficient, some propose more powerful cathæretics. But the dropping, pouring, blowing, or in any other way applying irritating remedies to the eye, and still more those which are corrosive and caustic, is not void of danger, because they always inflame it, generally reaching and injuring the pellucid cornea. Other practitioners seem to act more prudently, in gently and cautiously touching the pterygium with the lapis infernalis, and immediately immersing the eye in water, that any thing of a caustic nature may be suddenly diluted and washed away, to prevent the other parts of the eye from being injured. But if the complaint nevertheless continue without being attenuated, or if it grow worse, harder, and thicker, such as the penniculus is, the best remedy is found to be lancing it, which ought to be performed by a skilful surgeon. It sometimes

happens, however, that this cannot be done without some injury to the eye, on account of the intimate connection of the pterygium with the cornea and adnata. Besides, the cicatrix which is left by the operation prevents or impairs the sight. But we always free the eye from the *epiphora*, or watering, which is uniformly excited by the pterygium. If the pterygium acquire a cancerous disposition, it ought either not to be touched with any medicine at all, or cut out by an operation. The onyx and hypopyum require the same method of cure by means of an operation, which therefore is the business of the surgeon.

SPOTS AND PUSTULES OF THE CORNEA.

316. THE cornea is liable to other diseases besides. In particular, its transparency is obliterated, and its colour changed, which happens in a threefold way. For its pellucidity is destroyed, either in consequence of a thicker and denser humour being collected between the lamellæ, or from its vessels being rendered too turgid, on account of which the objects are seen dimly; which complaint is named *nubecula*; or a small cicatrix is left by the ulcers, wound, or blow, which appears thicker and whiter than the rest of the cornea, and this is named *albugo*, or *leucoma*; or, lastly, after a blow, or any thing similar, blood is effused and concretes in the cornea itself, or

under it, and therefore obscures its colour : this is named *sugillatio*, or *ecchymosis*. Small pustules are likewise occasioned generally by an acrid humour, and these are named in Greek *phlyctænæ*. These sometimes degenerate into small ulcers, of various size, colour, and disposition ; nay, sometimes become cancerous. Nor does the cornea itself remain free from such pustules, vesicles, and ulcers, for they attack both the adnata and cornea alike. Each of these affections are at once discovered on inspecting the eye.

THE CURE.

317. THE cure of the *nubecula* is easier than that of the *albugo* (316.). For the latter, if it be thick, and of long standing, is scarcely to be removed ; at any rate, in its treatment it is necessary to guard against irritating and corroding remedies, such as those generally are which are universally proposed. For they aggravate the complaint by inducing an inflammation in consequence of their irritation, or causing an ulceration of the cornea where it is found. Sometimes the fumes of fennel received into the eye, or the fat of vipers applied by means of a pencil to the *nubecula*, have been observed to be employed, not only without harm, but even with advantage. Likewise saffron and camphor are added with ad-

vantage to the collyria, for they prove gently diffusing and resolving, particularly in conjunction with the water of fennel, elder, and the herb eye-bright. If the complaint proceed from a recent cicatrix, and it be not very thick, it is said to be digested and attenuated by honey boiled up with ants. The cicatrices left by the small-pox, particularly in children, generally in process of time completely disappear, or are greatly diminished, merely by the assistance of nature, providing the patient be made to abstain with the utmost caution from the powders and washes which are commonly employed to remove them. Likewise the pustules, or *phlyctænæ*, frequently disappear of their own accord, in consequence of the vesicle bursting, and the contained liquor being poured out. They may also be opened with a proper needle, that a passage may be made for the acrid and corroding humour. But if they continue long, they require both internal and external remedies, which correct the acrimony of the fluids, and at the same time cause resolution or revulsion. Cathartics, vesicatories, and cauteries, are celebrated for possessing the power of revulsion. But if any turgid blood-vessel go to them, and seem to cherish the complaint, it ought to be cut across by means of a lancet, and, that it may not join again and render the incision unavailing, it must be cut in such a manner that some portion of it may be destroyed. But the ulcers which are left

by their bursting become sometimes so deep, that the aqueous humour flows out in consequence of the cornea being perforated, or the uvea becomes protuberant, or the crystalline lens is removed from its seat, and inclines forwards. They ought therefore to be cured as quickly as possible, first by those remedies which are demulcent and cleansing, and next by such as prove nutrient, drying, and induce a cicatrix. Among other remedies, the ointment of Woolhouse is held in great estimation. It is composed of the flowers of brass, well washed and reduced to a fine powder, together with the best fresh butter, or fine hogs-lard. The ulcers ought to be occasionally anointed with it. Lastly, the ecchymosis is cured by those remedies which are supposed to resolve and digest the effused and coagulated blood. Among these the first place is generally given to the blood expressed from the feathers of a young pigeon; but probably more advantage might be received from fomenting the eye, or from the vapour of eye-waters, from saffron, camphor, Hungary water, or from remedies for healing the wounds cautiously added to cooling collyria. But those waters seem to be better calculated for this purpose which are extracted from the herbs eye-bright, rue, chervil, hyssop, and from the flowers of the cyanus, elder-tree, teil-tree, and the like. It is attended, however, with greater advantage to prevent such

ecchymoses, by applying to the eye which has received the blow, bruise, or wound, cold water, renewing it frequently, for some time, on its becoming warm.

SUFFUSION OF THE EYE; OR CATARACT.

318. THE order requires that I should proceed from the diseases of the external to those of the internal parts of the eye; among which the first that presents itself is *suffusion*, or, as the Greeks name it, *hypochysis*, or *hypochyma*, commonly called *cataract*. In it the crystalline lens, or its integuments, are rendered opaque, so as to become impervious to the rays of light. Hence the sight first becomes dull, and is afterwards intirely lost. There are therefore two kinds of suffusion, one proceeding from a morbid state of the lens, the other from that of its integuments. The first seems to arise from the liquor which washes and nourishes the lens becoming in some manner deficient. It must necessarily then become dry, contracted, and opaque. This complaint is chiefly liable to attack those whose profession leads them to the constant inspecting of very minute bodies, or who pass whole days and nights in reading and writing. For while the muscoli recti of the eyes are continually stretched, which principally happens when

we wish to inspect minute objects narrowly, the tunica arachnoides, or capsularis, is pressed to the lens, and thus the fluid supplied by the tunic and its vessels to nourish the lens is prevented from being secreted. This happens also, whenever the same muscles, from any other cause, as inflammation or spasm, are violently contracted for a length of time; or when the vessels going to the capsule of the crystalline lens are inflamed or obstructed. But, as I have already said, the crystalline lens must necessarily become dry in consequence of the deficiency of the nutritious fluid. The secretion may likewise become defective, from a morbid condition of the same vessels, from their being destroyed, or too much distended, as it is probable happens in advanced life; from which it appears why old men are so frequently subject to this complaint. It may likewise occasionally happen, that the fluid itself, which ought to nourish the lens, in consequence of having become thicker and more tenacious, may deprive the lens of its pellucidity, or become so in consequence of stagnation, checked absorption, and the admixture of any heterogeneous principle.

319. The other kind of suffusion arises when the capsule of the lens becomes morbidly affected. This happens in various ways, but particularly if that coat be lacerated by a blow or

wound, if the inflammation arising in the choroid coat and ciliary processes extend to the capsule of the lens, and injure it ; if the habit of body be bad, or if a serous or impure colluvies, or the mucus of the nose, be carried to the internal parts of the eye, obstruct the vessels of this coat, and intercept the other passages ; if the passages through which the humour of the lens ought to penetrate, become relaxed in consequence of a blow ; if a person have abused the employment of mercury, or debilitated his system by venery, indolence, or too much indulgence in sleeping ; or if he have laboured under diseases of the head, and particularly long continued pain. In all these ways, the capsule of the lens may be changed from transparency to opacity. Moreover, cataract does not arise simply from a morbid condition of the capsule, but also from opacity of the membrane of the vitreous humour, where it receives the lens ; for if this common integument, by which it ought to transmit the rays to the retina, become opaque from any cause, it necessarily follows that the crystalline lens is incapable of performing its office, and must therefore appear opaque when the eye is attentively examined. These are the two principal kinds of the true and genuine cataract.

320. To these, however, ought to be added several other spurious species of cataract, which

have frequently occurred in practice. To them belongs the species named *cystica purulenta*, or *lactea*. For sometimes, in consequence of inflammation of the capsule of the crystalline lens, pus arises, and is collected between it and the lens, thus forming the cataract just now mentioned. Sometimes the crystalline lens itself is dissolved and converted into a similar humour, of a turbid and whitish disposition, by which the passage of the sight is rendered opaque. Sometimes in that corrupted fluid the lens has been observed floating, sapless, and opaque *. Some of the moderns, after the manner of the ancients, among whom are enumerated Woolhouse, Freytag, and others, have made mention of the *cataracta membranacea*. For they suppose that the aqueous humour may be altered in consequence of the admixture of other mucous substances, and that this kind of membrane is formed about the pupil †. In horses, as Lower observes, the mucus exuding from the margin of the pupil or uvea, sometimes concretes into a membrane which obstructs the pupil. Others are of opinion, that it has not been established beyond a doubt whether or not the existence of such a membrane in the human eye can be granted; although distinguished authors affirm that they have observed it, or that they have even depressed it with the needle ‡.

* Heister in *Ephem.* N. C. cent. iv. observ. 198. Valsalv.

epist. xviii. § xvii. Platner, *Program.* ann. 1736. d. xvii.
 † Billi, l. c. cl. 26. c. 6. p. 88. ‡ Jos. Irka, *De Morb. ocul.*
intern. p. 69.

THE DIAGNOSIS.

321. INCIPIENT cataract is denoted by the appearance of insects, hairs, *muscæ volitantes*, cobwebs, and the like, floating before the patient's eyes. As it increases, the eyes become dim, and as it were covered with a film: the colour of the pupil is changed, and becomes like opaque glass. When the complaint attains its height, the sight becomes more and more obscured, and is at length intirely lost, the colour of the pupil being either intirely white, or milky, ash-coloured, azure, or of the colour of gold, lead, copper, or steel, or blue, or green, and sometimes likewise red. At one time cataract is produced very slowly, at another within a few days; which happens when the eye has received a severe blow, or the coats of the crystalline lens have been ruptured or inflamed. If the lens alone becomes opaque and contracted, while the tunica arachnoides remains sound and transparent, the patient at first sees the objects better laterally than straight forward, and better in the dark than in the day-time, and during a bright light. The origin of the disease points out that the tunica arachnoides, or proper coat of the lens, is

injured, namely, the preceding inflammation, or violent contusion, no sense of light remaining, even in the dark, although the pupil be then dilated; and the cataract within appears whitish, and as it were shrivelled.

THE PROGNOSIS.

322. IF, in this complaint, while one eye is in motion, the pupil of the other be dilated, there are hopes of recovering the sight; but if this do not take place, no one ever regains it, as Galen noticed*: for in that case it is very probable, that not only the optic nerve is affected, but also that the iris itself, its vessels, fibres, and nerves partake of the complaint. If the patient do not see the light, although, when the sound eye is shut, the pupil of the other be dilated, no hope, or scarcely any, that the sight will be restored by puncturing the eye, is left. The first kind of cataract (318.) may sometimes be prevented by a proper diet, and medicines, or, at least, when it has attained its height, it may be removed by an operation, that is, depressed by the needle, or extracted by making an incision into the cornea. On the other hand, the other kind of the complaint (309.) is much more difficultly cured, and sometimes cannot be cured

at all, as in it, besides the crystalline lens, the tunica arachnoides, or the covering of the vitreous humour, where it adjoins to the lens, has contracted the disease in some of the ways already explained. And if any hope remain, it is not in medicines, but rests intirely on the surgeon's performing the operation with dexterity. The species named *purulent*, *cystica*, *lacteæ*, as well as the *membranea*, if they ever occur in fact, scarcely admit of a cure, unless it be attempted by the method of extraction proposed by Davieli. That the depression may be successfully performed, we have reason to hope, if the colour, from being whitish, become grey, or somewhat yellow: but no hope whatever remains if the colour be like that of polished gold, brass, or steel. But the eye itself claims our attention. For if it be neither hard nor too soft, and not altogether deprived of the sensation of light, it is considered as fit for the depression or extraction of the cataract; while it is considered as altogether unfit for it, if it be hard, small, concave, or too prominent. The complaint which arises from a violent and chronic disease of the head, particularly an excruciating headach, or from a blow, wound, or internal inflammation of the eye (302.), is said to be scarcely curable. That species of the complaint also is considered as being unfit for undergoing the operation, in which, before the appearance of the cataract, the patient had la-

boured under dimness of the sight. For in this case amaurosis, or gutta serena, supervenes, which is known to be approaching the nearer the farther the pupil departs from its natural figure, and the broader, more diffuse, immovable, and insensible to every appulse of light, it appears: although every dilatation of the pupil, or *mydriasis*, cannot be derived merely from a paralysis of the optic nerve; for a paralysis of the iris often proceeds from the resolution of its own nerves. Likewise old age or infancy are unfavourable. The cure is also rendered difficult by a bad habit of body, or any peculiar inveterate taint of the fluids.

* *De Symp. Causs.* c. 2.

THE CURE.

323. AT the beginning of the disease, when the eyes begin to grow dark, every pursuit ought to be avoided in which straining of them is required; and the causes by which the disease is either occasioned or kept up, ought to be seasonably obviated. Hence bleeding in plethoric patients, and purging in those with bad fluids, must be occasionally prescribed, together with those things which attenuate and purify the blood, rendering it in some measure volatile, and open the intimate and minute vessels, if the complaint seem to arise from too great quantity of the fluids, or

from vitiation or thicknefs of them, or obftruction of their paffages. Particularly the whey of goats milk, the decoctions of the woods, viper-foup, the powder of millipedes, or their juice expreffed by white wine, mercury, and its various preparations, and efpecially the *panacea mercurialis cinnabarina*, cinnabar of antimony, and the like, are recommended. Of late years, with the fame view, have been given, the extracts of hemlock, wolf's bane, black pulfatilla, belladonna, and others taken from poifonous and acrid plants; but we are ftill not fufficiently acquainted with their good effects. I likewise find the ammoniacal gum applied externally in the liquid form; but of it alfo, we require more ample experience. Thofe remedies, too, which call the humours elfewhere, or occafion the excretion of fuch as are noxious, or diminifh their quantity, as blifters, iffues, and fetons, are confidered as being fometimes attended with utility. Under this clafs fall errhines, the employment of which is occasionally attended with the beft effects. Boyle has mentiond an inftance of a cataract having been difcuffed by means of turbith mineral inhaled by the noftrils. Likewise attenuant and difcuffing remedies are applied externally, among which the glafs of antimony, crocus metallorum, and the gall of fome animals diffolved in eye-waters, as that of fennel,

greater celandine, eye-bright, and so forth, are celebrated.

324. When the disease has advanced, or proceeds from causes which cannot be corrected by art, some of which I have already enumerated (318. to 320.), it seldom happens that any advantage is to be obtained from that method of treatment (323.). It must then be considered, whether the surgical operation can be attempted, which will appear chiefly from the prognostic marks already enumerated (322.). There are two methods of treatment, the one by *depression*, the other by *extraction*. The depression is performed by means of a two-edged needle introduced near the external canthus, one or two lines from the cornea, behind the uvea, by which the crystalline lens, together with its capsule, is cut in two, and depressed, and, lastly, placed under the lower part of the vitreous humour, at the same time rest being prescribed for nine days, and both eyes being gently bandaged. The extraction is performed by making an incision into the lower part of the cornea, the incision being afterwards enlarged by means of a pair of crooked scissors bent so as to form three fourths of a circle. In the mean time the eye is supported by means of a probe placed under the lower palpebra, and, after the incision is performed, is gently pressed; in consequence of which it happens, that the crystalline lens immediately passes through the hole.

if it be ripe ; if not, it is extracted by means of a spoon, or some proper instrument. Lastly, the edges of the *tunica arachnoides*, and the mucous flakes proceeding from its being ruptured, are gradually extracted. It is very manifest that the aqueous humour at the same time is poured out, but it is easily regenerated. Concerning both operations the writers upon surgery may be consulted, in whose works the various methods of operating, together with various cautions, are delivered at length and with accuracy ; hence, when there is room for an operation, the business must be intirely intrusted to an expert surgeon.

325. I have already made mention of the *maturity* of cataract. I shall now, in a few words, point out what its nature is, by what symptoms it betrays itself, and when the observing of it ought not be omitted. Cataract is said to be arrived at a state of maturity when the blindness no longer increases, and seems already to have attained its height. For in that case it can easily be shaken from its seat, like fruit from its stalk ; and indeed it has sometimes happened, in the progress of time, that it has fallen of its own accord from its seat, in consequence of which the sight has been restored. But in order that it may appear more certainly whether it be ripe or not, the eye ought to be compressed and rubbed with the finger. If it be still crude, it spreads somewhat, and becomes broader, and immediately on the

external pressure being removed recovers its former figure. On the other hand, no change is induced in it by external pressure, if it have acquired maturity. The colour also must be carefully inspected. The whiter it is, it denotes that the cataract is the riper; and the opposite inference is to be drawn from its being paler, or verging upon black. It is likewise considered as a favourable mark, if the colour be of a whitish blue, or somewhat yellow, as I have already remarked in par. 322. where also I took notice of those colours which ought to be considered as unfavourable. These observations, however, altho' they apply with justice to the genuine cataract, which I have already described in its proper place (318.), perhaps do not apply to the other cases of the complaint (320.). This, at any rate, is certain, that that maturity is commonly requisite for performing the *depression*, though not for the *extraction* of the cataract. It remains for me to point out when the one is to be preferred to the other. In the first kind of cataract (318.), if it be not of very long duration, the depression seems more proper than the extraction. For it is more easily performed, and, what is of more consequence, much more safely, more readily, and with no less success. I do not however assert, that in this case the extraction is to be rejected, if it be preferred; chiefly because, when once extracted it cannot again rise, as sometimes

happens after its depression. The extraction of it, however, is not altogether unattended with risk; for, in performing it, if the eye be incautiously compressed, the vitreous humour flows out along with the aqueous, and the eye collapses, without any hopes of a recovery being left. In the other species (319.), in which the lens and its capsules have become affected, the followers of Daviell with good reason suppose, that the extraction is to be preferred to the depression. Nor is there a doubt, that if any thing can be done in the cystic cataract and other species (320.), that it depends intirely upon the extraction.

326. As the physician generally either presides over the operation, or at least directs the patients by his advice, he ought to know in what manner they are to be prepared for both operations, what kind of dietetic regimen ought to be employed, what bad consequence may result from the depression or extraction of the cataract, together with what ought to be avoided or prevented, as far as lies in his power. They ought therefore to be prepared by bleeding, particularly if they be plethoric, by purging, spare diet, and cooling remedies, that they may be rendered as little liable as possible to the inflammation with which the eye is apt to be seized after the operation. A serene day, and light apartment, must be chosen for the purpose, that the surgeon may perform his business in as clear a light as possible. After

the operation is performed, the eye must be covered with a rag or compress, wet with the white of an egg and rose-water shaken together ; and it must be also loosely supported with a bandage, with which the sound eye likewise may be covered, that it may not by its movements prove hurtful to the other. Moreover, if the extraction have been performed, the eye ought to be properly bound, at least for the first four days, lest, if coughing, vomiting, or sneezing occur, the vitreous humour should burst out from the wound of the cornea, to the very great danger of the eye. Likewise the bleeding, if necessary, is to be repeated after the operation, and in the evening of the same day a gentle paregoric is given, that the pain and irritation may be removed by inducing sleep. The strictest quiet ought to be enjoined for at least eight days, and care be taken that the patients should lie with their head raised, employing a spare diet, together with diluent and refrigerant medicines ; and that they should guard against light, vomiting, coughing, sneezing, chewing, and excessive heat. The belly must be kept open with injections, whey, and drink sweetened with honey ; nor must they be permitted to rise out of bed to go to stool, but carefully advised to evacuate, without any effort, into a vessel furnished to them. Lastly, after eight or nine days the severity of the regimen may be

somewhat remitted, and, providing no accident happen after the operation, the eye may be gradually accustomed to the light, which at first ought to be very faint. But it sometimes happens, after the operation, that an effusion of blood takes place into the anterior chamber of the eye; in consequence of which hypopyum is very apt to supervene. If this happen, besides bleeding, resolving remedies ought to be added, and, in particular, gently aromatic and vinous fomentations. More frequently, however, ophthalmia supervenes, especially after the extraction, when the crystalline lens, passing with difficulty through the foramen of the pupil, or taken out with a spoon, has injured the uvea and ciliary circle; for in that case the whole choroid coat is apt to be affected with inflammation, which will not intirely disappear for fifteen or twenty days. It is to be cured like other severe internal ophthalmia.

GLAUCOMA.

327. NEXT to cataract comes *glaucoma*. This affection happens when the crystalline lens, together with its capsule, is much enlarged, and swells to such a degree that the other parts of the eye are affected, and pressed upon so as to cause uneasiness. The complaint betrays itself by the

following marks : the eye is hard, resists the touch, and is unusually prominent. There is a particular sense of pain present in it *. That which internally impedes the vision, and appears on inspection, is of the colour of sea-water, from which it has its name. When the disease has attained a height, it likewise induces dilatation of the pupil, or mydriasis ; but, in consequence of the compression of the vitreous humour and the retina, which is occasioned by the great enlargement of the lens, it completely destroys the power of seeing. Writers make mention of another kind of complaint also, to which they give the name of *glaucoma*. This is peculiar to the vitreous humour, not to the crystalline lens. It is said to be present when the mass of the vitreous humour is increased, swelling beyond measure, and losing its transparency, while it assumes a sea-green colour, which is quite perceptible on inspection †. In both kinds of glaucoma, any kind of manual treatment is superfluous or hurtful, in the same manner as in cataract accompanied with mydriasis, or in that conjoined with paralysis of the pupil, of the nerves going to the eye, and retina itself, as I have already observed. But the vitreous humour much more frequently becomes dissolved, in which case the eye not only grows dim, but likewise concave and flaccid, and makes no resistance to the pressure of the finger. “ Hence,”

as Platner observes, “ when the vitreous humour is corrupted, the lens also must necessarily become vitiated † ;” which is another species of cataract, completely irremediable.

* Platner, *Instit. Chir.* § 1310. † *Ib.* ‡ *Ib.*

AMAUROSIS, OR GUTTA SERENA.

328. AMAUROSIS is that loss of sight which happens in consequence of a morbid condition of the optic nerve or retina. If it be not conjoined with any other disease of the eye, which therefore appears sound, excepting the pupil, which is observed to be only distended, it is named *gutta serena*. The proximate cause of this species of blindness is just the same as that of other paralyfes; and the remote cause is either ichor tinging and relaxing the nervous filaments, or the obstruction, pressure, or distraction of these last, too great fulness of the blood-vessels, a varicose dilatation of the central artery or vein, convulsion or spasm of the muscular fibres, especially of the musculus attollens and abducens, which in some measure cohere with the sheath of the optic nerve, and run over the nerve itself*, and corruption or compression of the thalami of the optic nerves. Dissection has discovered, that amaurosis, or blindness, proceeds from tumours compressing the optic nerves, as also from tur-

gescence of the pituitary gland ; from a calculus in the optic nerve, or in the pineal gland ; from wounds, abscesses, corruption, or various kinds of tumours of the brain ; from a watery tumour of the brain ; from an effusion of blood ; from compression of the thalami of the optic nerves ; from depression of the cranium ; from wounds of the head and cranium ; from the optic nerve being extenuated and corrupted † ; from morbid states of the brain ‡, and various affections of the same || ; from the corpus striatum being rendered soft § ; from an effusion of blood above the dura mater ¶ ; from a bone being forced into the sinus falsiformis ** ; from shrinking of the thalami †† ; from a schirrhous of the origin of the optic nerve ‡‡ ; from a tumour compressing it ||| ; from hydrocephalus §§, and other organic causes. The disease may therefore originate from the forcing in of the itch ; from the premature exsiccation of ulcers ; from metastases, a fall, blow, abscess, or inflammation ; from the long-continued habit of inspecting shining and minute bodies ; from a colluvies of the *primæ viæ* ; from too active cathartics, and consequent inanition of the vessels ; from the suppression of usual evacuations ; and, lastly, from hysterical and hypochondriacal affections.

* Zinn. *Descrip. Anatom. Ocul. Human.* c. 8. § vii. & c. 9. § ii. † Haller, *Elem. Phys.* T. iv. l. x. sect. vii. § xiv. ‡ *Ib.* in not. || Boehmer. fasc. ii. præf. observ. 3. § Petit *Lettr.* 1. p. 7. ¶ Manne, *Observ.* p. 154. ** Warner,

obs. 1. †† Morgagn. *De Sed. et Causs. Morb.* 1. p. 74.
 †† Muzell. ii. p. 91. ||| *Id.* p. 81. §§ Morg. i. p. 181.

329. Hence the diagnosis of amaurosis is obvious. But it is a difficult matter to know whether the optic nerve or retina alone be affected. This has been a subject of considerable controversy. Ettmuller thinks that he has done away the difficulty by observing, that blindness, if it come on gradually, is to be ascribed to a morbid state of the retina, but if suddenly and instantaneously, that it is highly probable that it then proceeds from an affection of the optic nerve. But were the opposite conclusion to be drawn, it might perhaps be supported by equal probability. But how can a morbid state of the retina be distinguished from that of the optic nerve? Some add, if the eye be rubbed and pressed with the fingers, and the pupil be observed to expand and contract, that it is a proof that the optic nerves remain sound, while the retina, or some part contiguous, is injured. On the other hand, that the optic nerve is in a morbid state, if no dilatation of the pupil follow. But I should beg leave to remark to them, that the motion of the iris or pupil frequently remains in genuine amaurosis, proceeding both from a morbid state of the optic nerve, and also from that of the retina. For it is a sufficient proof that the ciliary nerves remain uninjured, if the motion of the iris and pupil be

not destroyed. We infer, therefore, with more certainty, that in true amaurosis, if the motion of the pupil cease, besides the optic nerve, the ciliary nerves, and those belonging to the iris, are paralysed; and that, on the other hand, if it remain, they are uninjured. But if the retina or optic nerve be immediately affected, the disease is of very difficult cure. The remedies which I have recommended for the cure of cataract and apoplexy, are completely applicable to amaurosis, if it admit of a cure. A salivation excited by mercury is said to have sometimes proved serviceable. Sometimes, also, relief has been obtained from rubbing the forehead, and from the application of the spirit of baum, amber, or hartshorn, where the supra-orbitary nerve, which is a branch of the ophthalmic, comes out, repeatedly and long employed. The convulsive or spasmodic amaurosis is easily cured, and almost disappears of its own accord. Likewise, when it is a symptom of fevers, or other diseases, it disappears on these being overcome. It has sometimes been observed, that women seized at the commencement of pregnancy, upon the fourth or fifth month of gestation, or after delivery, recover their sight; probably in consequence of the vessels of the brain being emptied, and the quantity and impetus of the blood being directed elsewhere. There still remain other symptoms belonging to impaired or morbid sight, as *amblyopia*, *hemeralopia*, *nyctalopia*, *myopia*, *presbytia*,

strabismus, *nystagmus*, *diplopia*, and so forth ; concerning which, however, as being sufficiently explained in general pathology, and scarcely requiring any peculiar treatment, I shall refrain from speaking, the rather that most of them proceed from a malconformation of the eye, and are to be in some measure corrected by eye-glasses alone, or are frequently the effects of other diseases, in consequence of the removal of which they also are made to disappear *.

* Among the more ancient authors who have treated of the diseases of the eyes, may be consulted Maitre Jean, Sanctyvese, and Boerhaave ; and, among those of more modern date, Janin, and other well known authors.

C H A P T E R XI.

OF GRAVEDO, CORYZA, AND PHLEGMATORRHAGIA.

330. THESE affections do not differ much, although by most authors they are distinguished with too much nicety from one another. That catarrhal affection is named *gravedo*, in which the pituitary membrane is so much swelled, as to prevent the access of the air into the nostrils, rendering the voice obtuse, occasioning a sense of weight, affecting the whole head, or only the forehead and temples, with a pain which is sometimes dull, sometimes pungent, sometimes

throbbing, frequently accompanied with tinnitus aurium, while at the beginning either no discharge of humour takes place, or only a small quantity of thin fluid passes off, which at length, towards the end of the disease, is discharged thicker and more tenacious. Some name it *coryza sicca*, though improperly, in order to distinguish it from the genuine coryza, which is moist, and will be shortly explained.

331. When thin phlegm, or serous fluid, is discharged from the nose, sometimes crude, and without acrimony, sometimes acrid and salt, and excites frequent sneezing, with the other symptoms already described (330.), the disease assumes the name of *coryza*. It is commonly called *distillatio*. But if the discharge of limpid phlegm be uniform, or if rather the frontal sinuses abound with serous humour, in such a manner that, on the head being inclined forward, it is immediately discharged with great violence, and insensibly, it is named by Juncker and others, *phlegmatorrhagia*. It frequently happens, that in these affections (330. 331.), a slight fever comes on, and unusual torpor of mind, not as the ancients supposed, because the humour is discharged from the brain into the nose, but on account of both parts being stuffed with a similar phlegm.

332. The proximate cause of gravedo seems to be a congestion of blood and serum in the ves-

sels, cells, and follicles, of the pituitary membrane and neighbouring parts, which not unfrequently approaches to the nature of a slight inflammation. In coryza, the secreting vessels and mucous follicles are more affected, in consequence of which a more copious secretion and excretion of the serous humour and mucus take place. In like manner, an increased secretion, and excretion of serous phlegm, in the frontal sinuses, seems to constitute the cause of phlegmatorrhagia. Nor can that be supposed to take place, unless the blood and serum be carried in too great quantity to those parts of the pituitary membrane which invest the sinuses, forming a collection there. But the remote causes are considered as being too great a quantity of phlegm and serum, increased cohesion, or unusual acrimony of it, relaxation or sudden contraction of the vessels and membranes of the head, and chiefly of the pituitary membrane. Hence moist and cold air, or that which is dry and hot, a bad state of the fluids, the abuse of tobacco, and checking of the insensible perspiration, generally occur as occasional causes. With regard to checking of the perspiration, which is generally blamed, Keil, in his *Medicina Statica*, considers that it is free of all blame, and is rather inclined to derive coryza from noxious and frigorific particles of air, received by the nostrils and pores of the skin, which pervert the proper crasis of the blood and fluids. Others ascribe these affections to cold, as they know that, in conse-

quence of cold, the blood, lymph, and mucus, are coagulated, and the vessels and fibres corrugated. Simpson rejected both of these opinions *. For he does not deny that the whole external surface of the body becomes constricted with cold ; but he denies that in consequence of this the fluids are forced in unusual quantity, and with unusual violence, to the pituitary membrane, and such internal parts, as if by reflux, giving rise to the catarrhal congestion. But, if I may be allowed to judge, each of these opinions appears to me to have a great deal of probability. For it appears that something is introduced into the body from the cold air, by which the way is paved to the catarrhal affections, particularly in epidemic constitutions, in which sometimes the disease is so universally diffused, that it spares no one, however carefully he may guard against the injuries of the seasons, or against communication with the sick ; while at other times, under similar circumstances of the seasons and cold, no such thing is observed to take place. In general, however, no one acquainted with the physical properties of cold can deny that both the cutaneous perspiration, as well as that from the nostrils and fauces, is suppressed ; that the blood, lymph, and mucus are condensed ; and that the vessels, cells, and glands, are contracted by it. Nor is it untrue that the blood and other fluids, finding greater resistance on the surface of the body, according to the laws of hydrau-

lics, ought to proceed to the internal parts in greater quantity, among which last must be reckoned the pituitary membrane.

* *In Dissertationib.*

333. But particular seasons of the year, and states of the air, are more liable to occasion those complaints, especially the spring and winter season *, a dry, cold summer, succeeded by a rainy and warm †, or cold and dry, autumn ‡; as also sudden vicissitudes of the weather from heat to cold. “Hoarseness and gravedo occurring in very advanced life are not concocted ||. Pains of the head and forehead, both proceeding from violent winds, and from cold succeeding to violent heat, are chiefly removed by a gravedo coming on §. In all diseases of the lungs it is a bad symptom when gravedo and sneezing either precede or succeed to them ¶.” So far with regard to the event of the disease, from the Prognostics of Hippocrates. Such affections, however, frequently make a mild disease, and are dispelled merely by the assistance of nature. Sometimes, again, they prove more severe and durable, and then they become injurious to the brain itself, threatening apoplexy, lethargy, or suffocating catarrh. Nor is less apprehension occasioned by the coryza, or phlegmorrhagia, being suddenly suppressed, in consequence of the sudden exposure to cold, or any other cause, if the ferous colluvies being forced in cause acute and violent pains

of the head, which extend to the root of the nose, together with vertigo, tinnitus aurium, lassitude of the whole body, and slow fever, as we learn from Van Swieten **. If the humour which is discharged in coryza be very acrid, it gradually gives rise to ulcers of the nose, ozæna, and carries.

* Hippocr. aph. 20. 23. sect. 3. † Aph. 13. sect. 3.
 ‡ Aph. 14. sect. 3. || Aph. 40. sect. 2. § *Prædict.*
 11. 148. ¶ *Præn.* 93. *Coac.* 399. ** § 69. n. 6.
in Boerhaav.

334. The cure depends upon the indications which I have laid down in the catarrhal fever *. In general the most convenient remedies are those which prove diluent, resolve lentor, digest congestions, allay acrimony, open the perspiratory vessels, and occasion revulsion from the head and nose, as bleeding, dry and bloody cupping-glasses, bathing of the feet, cathartics of manna, the pills of the succinum Cratonis, infusions of tea-leaves, scordium, blessed thistle, the flowers of teil, or those of elder, decoctions of barley, scorzonera, bark, grass, saffrafras, the cooling nitrous powders, and the like. The patient may also inhale by the nostrils the vapour of warm water, in which emollient herbs have been boiled; nay, tepid water itself; and, if the acrimony of the fluid require it, milk diluted with water, or some mucilaginous substance, may be drawn up the nostrils. Likewise mild perfumes of mastich, amber,

benjamin, and juniper-berries, are recommended, particularly to correct the cool air of the chamber. In a very severe affection of the head, or obstinate complaint, blisters of cantharides may be applied to the neck, arms, or behind the ears, nay, to the temples, with the greatest advantage. If the vitiated humour have occasioned ulceration of the pituitary membrane, decoctions or infusions of sage, peppermint, milfoil, fennel, and rosemary may be injected. Honey may also be occasionally added, to prove more cleansing. If these be not found sufficient, a decoction of guaiac ought likewise to be employed, particularly if the ulcer be foul. Our care, however, ought to be chiefly turned to the internal cause, namely, lues venerea, scurvy, bad conditioned fluids, or some other complaint conjoined with the disease. The nature of the diet also ought to be accommodated to the causes. Too dry air may be corrected by means of steam; that which is moist and impure by resinous and balsamic perfumes, and a good fire. Friction of the whole body, and moderate exercise, on account of their promoting the circulation of the fluids and perspiration, prove of the greatest advantage.

* Vol. i. *Concerning Fevers*, § 348.

C H A P T E R XII.

OF EPISTAXIS.

335. IF an unusual discharge of blood take place from the vessels of any part of the body, it is generally named an *hemorrhage*. But according to the various parts from which it flows, it receives a peculiar denomination, for the sake of distinction. The ancients taught that the blood could flow from its vessels in a fivefold way: 1. by *anastomosis*, or by dilatation of the extremities of the mouths with which they supposed the ends of the small arteries to be endowed; 2. by *diæresis*, or the division of the small vessels; 3. by *diapedesis*, or exudation; 4. by *rhexis*, or rupture; and, 5. by *diabrosis*, or erosion. Dilatation of the exhalant arteries, which perhaps alone open at the extremities, takes place in consequence of the impetus of the blood flowing in, or laxity of the small vessels, or atony of their orifices. *Diæresis* proceeds from those causes which cut, puncture, or in any similar way produce a solution of continuity. *Diapedesis* is occasioned generally by tenuity of the blood, or by its watery dissolution, together with relaxation

of the fibres, and dilatation of the inorganic parts with which all the vessels and membranes abound. Rupture, or *rhexis*, proceeds from plethora, both real and apparent, from blows, falls, efforts, increased motion, obstruction, ligatures, compression, spasm, debility of the membranes, &c. *Diabrosis* proceeds from various acrimonies by which the coats of the vessels may be eroded, both internally and externally, until they are perforated. But these five kinds of hemorrhages seem referable to three, namely, the *anastomosis*, *rhexis*, and *diabrosis*; for the *diæresis* nearly corresponds with the *rhexis*, and the *diapedesis* with the *anastomosis*, or at least they can scarcely be distinguished; as both in the case of puncture or rupture the continuity is interrupted; and both in the diapedesis and anastomosis, the blood exudes without any solution of continuity.

336. In every species of hemorrhage, therefore, we are to inquire in what manner, and from what cause, it takes place; hence not only the preceding and concomitant circumstances, but also the diathesis of the blood, ought to be very carefully considered. Blows, friction, wounds, immoderate exercise, and other external causes, appear sufficiently of themselves. From the patient's habit, temperament, diet, manner of living, and so on, either plethora of the blood, or thinness and acrimony of it, or atony and laxity of the solids, are discovered. That the motion of the blood in any

part is retarded, while its impetus is elsewhere increased, will appear from its too copious ap-pulse to the part from whence it flows, and from the swelling, distension, redness, and violent pulsation of the neighbouring parts. Some light also may be obtained from the attentive consideration of the blood which flows out. If that which is discharged be florid, red, or pass out with great violence, it denotes abundance or thinness of it; and if it concrete with difficulty, it indicates dissolution of it. But when it is thin, watery, and not unlike water in which flesh has been washed, it denotes excess of the serum, and a watery diathesis.

337. Hemorrhage is divided into that which proceeds from external violence, and that which arises spontaneously, and from internal causes. Concerning the former, which is likewise named *violent*, writers upon surgery treat; with the latter, or the spontaneous kind, physicians are principally engaged. There are various species of it, of which one is named *salutary*, or *critical*; another *not salutary*, or symptomatic; another *habitual*; and a third *accidental*. That one is called *salutary* which removes the cause, which gives rise to a disease, or the disease itself; as happens when the body is freed by it from a superfluous and redundant quantity of blood, or when congestions are removed, which frequently happens.

That one also is salutary which is named *critical*, as bringing about a crisis in acute diseases, phrenitis, sphacelus of the brain, apoplexy, hepatitis, pleurisy, cephalæa, gravedo, convulsions, ardent fever, and similar diseases.

That one is named *not salutary* which neither removes the disease nor its cause, or which induces some new one. Under it also falls the symptomatic species, as well as that which is chronic, exhausts the strength, and so leaves another disease behind it. The habitual species is of frequent recurrence, and comes on without any evident and particular cause. The *accidental* kind takes place in the opposite way.

338. Every person must perceive that the larger the vessels are from which an hemorrhage takes place, the greater must be the danger. Likewise the more profuse it is, and the more it discharges in a short time, so that some pounds of it are quickly lost, the weaker the patient is; and particularly if at the same time the face, lips, nails, and rest of the body be pale, if the extremities grow cold, the arteries subside, and if sleep and fainting supervene, the more imminent is the patient's danger. But the fainting ought not always to create alarm; for sometimes the blood, which the other remedies have not been able to check, in consequence of the motion of the heart being somewhat interrupted, as it is forced very little, or not at all, *a tergo*,—stops, concretes into throm-

bi, and shuts the open vessels, if they be not constricted by their contractile power. Likewise that species is more dangerous which proceeds from an internal cause; or at least requires no less prudence and care than that which is occasioned by an external one. On the whole, that one is more easily cured, nay, not unfrequently ceases of its own accord, which arises from plethora. Lastly, whatever the species of hemorrhage be, if, in proportion to its duration, the quantity of blood which is lost do not exceed bounds, it cannot of itself prove highly detrimental; but if it exceed bounds, fainting-fits, languor, cachexy, and dropsy, may be dreaded. Nor does it signify that instances of immense discharges of blood have happened, to the patient's imminent danger, without being followed by death. Lastly, it is considered as a very bad sign, if, in consequence of an hemorrhage, the pulse disappear; if frequent fainting-fits occur, and if the extremities become cold, and the limbs convulsed.

339. The observations which I have already made concerning hemorrhage in general, may be applied likewise to the particular discharge of blood from the nose which arises from the rupture, dilatation, erosion, or relaxation of the vessels of the pituitary membrane, and is occasioned by the same remote causes as other hemorrhages. Besides the common varieties, concerning which I have al-

ready spoken (337.), there is one peculiar to this hemorrhage which is derived from the manner in which the blood is discharged ; for it either bursts out in great quantity, and then genuine epistaxis occurs, or it flows by drops, sparingly and slowly, and then it is named *stillicidium*. Which last occurring in diseases, is symptomatic of an unavailing effort of nature ; for no discharge which is sparing in general can prove critical *. An epistaxis occurring in old men is frequently the forerunner of apoplexy. If an hemorrhage attack people who are very much debilitated, it frequently proves fatal, or gives rise to consumption, or occasions cataract, glaucoma, and *gutta serena*, and, in consequence of these, loss of sight †. An hemorrhage taking place in hectic people, whose blood is in a state of colliquation, and all their vessels relaxed, announces the immediate approach of death.

* *Coac.* n. 57. 337. 340. † Platner, *Ars. Med.* § 269.

THE CURE.

340. THE salutary and critical epistaxis, providing it be not immoderate, in which case it could not be salutary, ought by no means to be checked. For when suppressed, besides other complaints, it sometimes gives rise to convulsions, which are allayed by bleeding alone *. That

which is not salutary requires the employment of a proper method of cure. The cure is twofold : *first*, that which is used during the presence of the hemorrhage ; *secondly*, that which is required after the stopping of it. During the time of the hemorrhage those remedies are employed which check the flow of the blood. When the epistaxis is at length checked, or prolonged for some time, the cause from which it proceeds is to be obviated. Many remedies are proposed to stop the flow of the blood, of which some diminish the quantity of the blood, and avert its course from the nose, some correct its bad quality, and others straiten and shut the mouths of the vessels. The remedies of the first kind are, bleeding, repeated at proper intervals, dry and bloody cupping-glasses applied to the neck, shoulders, back, legs, or hypochondres †, painful binding of the limbs retarding the return of the blood by the veins, suddenly terrifying the patient, the dashing of water upon the back or face without apprising the patient, or applying it to the pudenda, fainting, plasters composed of gypsum, vinegar, and the white of an egg, applied cold to the forehead.

* *Coac.* 336. † Van Swieten, § 741. where he quotes Galen, who used to fix a cupping-glass upon the right hypochondre, if blood flowed from the right nostril, and *vice versa* ; and affirms that in this manner the blood was immediately stopped.

341. To the second class belong many different remedies, which vary according to the various morbid states of the blood. For if the blood be too warm and abundant, the proper remedies are refrigerant things, consisting of lettuce, water-lilly, purslane, sorrel, and every thing of a subacid and cooling kind, new vinegar, and the mineral acids themselves, as also emulsions of the cold seeds, and the like. Platner recommends throwing in cold injections, both to relax the belly, and allay the heat of the blood *. But if a watery thinness be present in the blood, and atony and laxity of the solids concur, astringents and strengthening remedies, as plantain, nettles, comfrey, peruvian bark, cascarilla, bistort, tormentil, peaches, pomegranate, balauſtia, terra figillata, coral, and iron, are the most proper remedies. Lastly, if any acrimony be present, it ought to be opposed by the usual remedies, as well as by those which prove demulcent and act as sheathers, which have been already so often mentioned. But after the plethora has been removed, above all, opium is recommended as checking every excessive evacuation, except the sweat, by diminishing the sensibility of the nerves, and allaying the spasmodic motions. But although it increases the force of the heart, it must not be administered to patients labouring under great debility, and it must be in some measure corrected, as in the vegetable æthiops,

in the *diascordium Fracastorii*, and other preparations.

* L. c.

342. The mouths of the vessels are closed, which I proposed in the third place, by the external application of medicines, such as alum, vitriol, dragons-blood, agaric growing to the oak-tree like a horse's hoof *, and the like. Pledgets sprinkled with these, or dipped in solutions of them, are thrust up the nostrils in order to compress and constrict the open vessels. Likewise liniments of the strongest spirit of wine warm, or of the astringent balsam of gherl, dipped in the tincture of catechu, are recommended with that view. They act more powerfully when assisted by the powder called *pulvis cottaris*, or when moistened with a solution of vitriol. In this case many place a great deal of reliance on the Roman vulnerary water, as one of the surest remedies which can be procured, although its efficacy appears very doubtful to impartial people. Soot, if other remedies cannot be obtained, beat up with the white of an egg, and received on a pledget, or cotton, is thrust up the nostrils with very great advantage. But there is no occasion for so many remedies. Pledgets alone, of scraped or folded linen, without any other addition, are sufficient, if they be put into the nostrils in such a manner as to be strongly pressed against the open vessels. This is done

in a variety of ways, as may be seen in surgical works. If it be necessary to insert them still deeper, so that they may reach the open mouths of the veins, they are attached to a thread, which being passed through the nostrils and fauces, both applies them to the part from whence the blood issues, and directs them as may be found necessary; as the writers upon surgery point out. Sometimes merely by the continued pressure of the nose with the fingers, if the blood proceed from the fore-part of it, the discharge is stemmed.

* Concerning this kind of fungus and its employment, see *Comm. Lips.* vol. 1. p. 144. and *Observations on the use of the Agaric*, by George Heate, Lond. 1758.

343. When the blood is checked, if the hemorrhage proceed from any taint of it, or be derived from any manifest cause, we must employ remedies calculated for preventing the return of the disease, in conjunction with a proper regimen. The patient ought to be kept quiet, in a cool, dark chamber, slightly covered with bed-cloaths, his head being raised high; nor ought he to speak much, or take any thing warm, or chew any thing solid. The diet should therefore be liquid and cooling, that the flow of blood may not be increased or renewed by the motion of the jaws. Every thing which increases, quickens, or attenuates the blood, ought

to be avoided. Cold water ought to be given for the drink, the use of wine being prohibited, unless the greatest debility indicate that a little weak, red, and austere wine may be allowed. All motion both of mind and body ought to be avoided with the utmost caution.

C H A P T E R XIII.

CONCERNING PAIN OF THE EARS, AND CERTAIN MORBID AFFECTIONS OF THE HEARING.

344. THE ears, like other parts, are liable to a pain, or *otalgia*, and indeed of a very severe kind. I shall therefore speak first of that pain, and in the next place turn my attention to particular morbid states of the hearing, namely, abscess and ulcers of the ear, dulness of hearing, deafness, and tinnitus aurium. Two kinds of *otalgia* occur, the one without inflammation, the other with it. The first species is commonly named *otalgia spuria*, or *notha*; the latter *vera*. This last is named by some *otitis*. The most frequent seat of each complaint is the membrane which lines the meatus auditorius, and secretes the wax. But notwithstanding this, the other parts of the inside of the ear, as the tympanum and labyrinth, do not remain free from

the pain, although in fact these parts be less frequently affected.

345. The *otalgia uotha* is occasioned by irritation of the nerves or spasms, or by the congestion of an acrid and serous rheumatic humour, or some other cause, distracting, compressing, or vellicating the fibres, nerves, or vessels. The *genuine otalgia*, again, or *otitis*, is caused by the inflammation of one or more parts of the ear. In the former no fever is present; in the latter fever is conjoined with the pain; which constitutes the principle distinction between them. In both tinnitus and deafness occur. The causes which give rise to otalgia are manifold. In children, the most frequent is supposed to be the cutting of the *dentes molares*: for the branches of the inferior maxillary nerve, which is the third branch of the fifth pair, and belongs to the tongue, unite with a smaller nerve, which descends from the ear, and is derived from the seventh pair, and its *portio dura* *. Hence it follows that the greatest sympathy must necessarily subsist between the jaw and ear, in whatever manner it takes place. After this cause come sudden and violent vicissitudes of the weather; the catarrhs arising from thence; cold suddenly applied to the head or feet when warm; the suppression of tinea, achor, or the itch; metastases in acute fevers; hurtful things entering or falling into the ear, or growing there; and lastly, all those

things which I have already repeatedly shewn to be capable of inducing pain or inflammation.

* Platner, l. c. § 350.

346. The *otalgia vera*, or *otitis*, in particular, betrays itself by a very acute pain, heat, increased pulsation of the arteries, violent fever, and frequent pricking, as if the part were bored with something. But no swelling or external redness are observable, unless the external parts also happen to labour under the same complaint. According to the variety of the parts affected with the inflammation, particular symptoms are observed. When the *meatus auditorius* alone is affected, the pain is more external; returns on being touched; the hearing rather becomes dull, than is lost; and its internal surface, so far as it can be noticed, is remarkably red and swelled. Moreover, we understand that the membrane of the tympanum and its cavity are inflamed, if the sense of pain be felt more internally and acutely, if it extend to the fauces, if it be accompanied with great tinnitus, and do not altogether deprive the patient of hearing. All the symptoms are worse, if the innermost, or third cavity of the ear, namely, the labyrinth, be affected. For then the hearing is almost intirely lost; the pain is very acute and internal, stretching to the head and brain, and almost depriving the patient of his senses; and

not unfrequently convulsions, vomiting, fainting, and delirium supervene.

347. Genuine *otalgia*, or *otitis*, is more severe and dangerous than the other ; and the more so still the more internal its seat is, and the less it seems to spare the brain. Hence it not unfrequently proves fatal on the seventh day, unless it be very speedily removed by art, or relieved by an epistaxis, or a discharge of pus from the ear. For it is sometimes resolved ; more frequently it terminates in suppuration, and, afterwards a discharge of pus taking place, the pain and heaviness are greatly relieved. Sometimes, however, the abscess leaves an ulcer, which, if it do not unite properly, occasions constant ringing of the ears. The *otalgia* proceeding from acrid serum, or catarrhal affections, is sometimes terminated by sweat, sometimes by a diarrhœa.

THE CURE.

348. AT the beginning of the complaint, therefore, the inflammation must be resolved by bleeding, scarification of the occiput, or shoulder-blades, bathing the feet, gentle purging, and by antiphlogistic and diluent remedies. Resolution ought likewise to be attempted externally by means of anodyne fomentations and cataplasms. The pain is alleviated by tepid water, women's milk, or that of cows, oil of sweet almonds, of

the yolks of eggs, of white poppy-seeds, or that of hyoscyamus, recently expressed, being dropped into the ear, or by stuffing the ear with cotton moistened with them. If the otalgia arise from catarrh and a serous congestion, the humour must be drawn from the part by cupping-glasses; by cantharides applied to the neck or mastoid process; by sialogues, by the root of pellitory, of white burnet, mastich, pepper, and by tobacco kept in the mouth; by cathartics and sudorifics. Nor must bleeding be omitted when the severity of the pain requires immediate relief. But if affections of the nerves and spasms have occasioned the pain, as frequently happens in hysterical and hypochondriacal people, it must be opposed with opium, anodyne, and antispasmodic remedies. It is proper to know, however, that every thing injected into the ear ought to be previously slightly warmed. Nor ought these remedies, particularly the oily ones, to be used to excess; for it sometimes happens, that the internal parts of the ear are so relaxed or obstructed as to be afterwards difficultly restored. Lastly, if any foreign body have passed into the ear, or been formed in it, so as to give rise to otalgia, it ought to be removed with as much dexterity and dispatch as possible. Worms may be destroyed by means of oily, sweet, or, as others suppose, bitter things; gnats and other insects may be extracted by introducing water, honey, or cotton, into the ears. Celsus

observes, “ a little wool may be put into the ear, in order that the gnat or other insect may enter it, and be extracted along with it *.” When the suppuration has commenced, emollient cataplasms, composed of fine bread and milk, and boiled with the leaves of marsh-mallows, may be applied. When the pus is digested, it may be drawn out by fatty matters, or by hogs-lard, or butter, and the ear may be washed either with simple barley water, or with that which is mixed with honey, and, if necessary, some honey of roses may be added; but when a great discharge of humour proceeds for a length of time from the abscess or ulcer, it ought not to be rashly checked. Frequently when retained it produces erosion, or is converted towards the brain, to the imminent danger of the patient. It is therefore better to employ those things which correct the dyscrasy of the fluids, and improve the whole system; in consequence of which it generally happens that the ulcer heals up without any injury. Sometimes the sebaceous follicles or glands, by which the wax of the ears is secreted, are obstructed somewhere, and give rise to the formation of a tubercle. If it undergo inflammation, a severe otalgia arises, which is apt to quickly terminate in an abscess. Venesection is seldom necessary in it. Emollient anodynes and emulcents alone prove sufficient.

* L. vi. c. vii.

DULNESS OF HEARING.

349. THE faculty of hearing is impaired, or the hearing becomes dull and difficult,—which affection is named by Sauvages *dysœcœa*, or *hypocophosis*,—in various ways, particularly from a morbid condition of the external ear, from its division, mutilation, or depression, or from the meatus auditorius being obstructed, compressed, or swelled, from induration of the wax, from hardened pus and crusts formed in it, or from relaxation of the membrane of the tympanum and other parts, or from too great an abundance of serous fluid, as happens in catarrh; or even from sympathy with the *primæ viæ*, as in hypochondriacal people. The want of the external ear is supplied by an ear-trumpet. Obstruction of the meatus auditorius is removed by dissolving the wax, hardened pus, or crusts which are formed in the passage by means of saponaceous and oily injections, and by the extirpation, cutting, or destroying of the tumours. The membrane of the tympanum and contained parts recover their strength from dry and slightly balsamic suffumigations, or from the essence of castor, tincture of amber, and spirit of wine somewhat tinctured with camphor, in which cotton being dipped is inserted into the meatus audi-

torius, and left there, to exclude the damp air. A collection of serous and catarrhal humour is removed and evacuated by errhines, sialagogues, diuretics, hydragogues, sudorifics, issues, setons, and blisters, applied to the back of the head or mastoid process. A colluvies in the *primæ viæ*, if it render the hearing dull, is removed by cathartics; and spasms, if the disease proceed from them, are allayed by paretics and antispasmodics.

DEAFNESS.

350. If the meatus auditorius, as sometimes happens in newly-born infants, be obstructed by an unusual membrane, or any other organic fault; or if the membrane of the tympanum become rigid, or ossified, or burst, or be eaten through; or if the bones of the tympanum, or labyrinth, and other internal parts, be contaminated in consequence of any severe injury, caries, or ulcer, or be otherwise destroyed; or if the Eustachian tube have united, which may happen in consequence of a tumour, scirrhus, or cicatrix formed in it, as after venereal ulcers of the throat; or if the auditory nerves have become paralysed, as happens after a blow of the head, or apoplexy; it is perfectly manifest that deafness, or *cophosis*, succeeds, or that the hearing is destroyed, leaving scarcely any hope of a cure, excepting in the case

in which the meatus may be opened by an incision. Moreover, the cavity of the tympanum is sometimes filled with water, on account of the Eustachian tube being obstructed, or otherwise shut, or on account of the power of the absorbents or lymphatics being impaired or intirely lost; but it is filled in such a manner that the membrane of the tympanum is forced outwards, and the stapes pressed with violence against the foramen ovale, while the membrane is pressed against the foramen rotundum; on which account the hearing must necessarily be gradually destroyed. In that case, if there be any remedy, it appears to depend on gargles or sialagogues, or upon an ulcer burnt in upon the mastoid process,—the cells of which communicate with the cavity of the tympanum,—by means of hot iron, or the lapis infernalis, as Balloft advises, the discharge being kept up for a great length of time.

MORBID HEARING.

351. IT remains for me to turn my attention to morbid hearing, to which ought to be referred, too acute hearing, tinnitus aurium, bombus, and sibilus, namely, morbid sounds, which arise from excessive sensibility, or from increased and irregular tremors, excited in the cavities, bones, membranes, and other parts of the ears. Such morbid conditions are comprehended by Sauvages under the single term of *paracusis*, or *false hearing*.

These tremors are occasioned either by plethora, or by a quantity of blood forced into the vessels of the head and ears, or by increased irritability of the muscular fibres going to the ears, or excited by particular stimuli, or by the agitation of the air contained in the cavity of the tympanum, or of water in the labyrinth and its ducts. For it must appear evident, that, in consequence of the violent pulsation of the arteries of the ear and brain, an unusual sound, like that of a body when struck, arises, or that, in consequence of excessive tension of the membrane of the tympanum and muscles, or too great sensibility of the nerves, the hearing is rendered troublesome, and too acute; or that, from the concussion of the bones, or water of the labyrinth, tinnitus or susurrus is occasioned, or from the air shut up within the cavity of the tympanum being expanded, and suddenly exploded through the Eustachian tube, that bombus arises, or that, from the same bursting out gradually and with difficulty through it, a kind of hissing sound proceeds. Sometimes these various symptoms of morbid hearing occur apart; sometimes they precede convulsions, epilepsy, apoplexy, or delirium; sometimes they supervene in acute diseases, at other times they succeed to other complaints, as hypochondriasis or hysteria. Each of these affections must be treated in a manner which seems calculated to their causes, and which may be very readily collected from what has already been said.

C H A P T E R XIV.

CONCERNING ODONTALGIA.

252. TOOTHACH is named in Greek *odontalgia*. That part of the teeth which lies within the socket is hollow, and provided with nerves and blood-vessels. On the outside they are strengthened by the periosteum, ligaments, and the gums. If inflammation occur in any part, or a serous collection, or an acrid or irritating humour vellicate any part of them, or if a tooth become carious, various pains and symptoms must necessarily be the result. Generally the gums swell, and become red, nay, the cheek also becomes similarly affected; sometimes fever comes on, throbbing, constant watching, pains of the ears, eyes, and head, by consent. The inflammation, whether accompanying or succeeding to the complaint, frequently terminates in abscess. If the internal parts become affected with it, carries, looseness, and destruction of the tooth, or fistula, may be dreaded. If the external parts be affected, *parulis*, *epulis*, and destruction of the gums, are the consequence. The remote causes are almost the same as those of otalgia. The cure

also ought to be varied according to the nature of the causes, as I have already prescribed in the cure of otalgia.

353. Besides those remedies which were first proposed for the cure of otalgia (348.), gentle diaphoretics are recommended, particularly the rob of elder-berries, to the extent of an ounce for each dose, together with anodynes. The patient ought to keep in his mouth either warm milk, or water in which the heads of white poppies, or the seeds of hyoscyomus, have been boiled, with the addition of a little vinegar, care being taken not to swallow it. Likewise, externally, fomentations, and the softest cataplasms and remedies for removing pain, ought to be applied to the part affected. Moreover, some opium may be given internally, if the pain prove distressing. In that species of odontalgia which arises from a ferous congestion, or acrid humour, the cure which I have mentioned as being best calculated for otalgia arising from a similar cause (348.) seems best adapted. Some propose burning the extremity of the anthelix, antitragus, or lobule of the ear, with hot iron, or moxa. But behind the ears is a better place, or under them, as an artery, vein, and nerve lie there under the ear, enter the lower jaw, and are distributed along its whole length to the root of all the lower teeth. In such a case, therefore, cauteries or blisters are more proper, which draw out and excrete the acrid se-

rum, and in some measure deaden the sensibility and ataxy of the nerves. For it has been observed, that merely by powerful compression behind the lower jaw, the pain is sometimes immediately allayed. Likewise plasters composed of mastich, peruvian balsam, camphor, and opium, applied to the temples and beneath the orbit, occasion immediate relief. For the nerve proceeding from the fifth pair to the temporal muscles is of the same origin as the nerves which go to the roots of the teeth, and the nerve which passes out immediately under the orbit is distributed to the fore-teeth of the upper jaw.

354. The pain proceeding from a carious tooth is best relieved by inserting a piece of opium, or by a drop of oil of caryophyllus, or spirit of vitriol dropped into it, or dropped on some cotton, and placed in the hollow. If the pain do not yield to this treatment, a hot iron-wire may be introduced through a cannula into the hollow of the tooth, in order to destroy both the caries and the internal nervous membrane. The hole must then be stuffed with a bit of lead properly adapted to it, that the complaint may not be aggravated, or made to return by the food, or drink, or by the access of the air. But if these avail nothing, or cannot be employed, the tooth must be extracted, not only to remove the pain, but also to preserve the other teeth from the contagion, which is very apt to

spread among them. The drawing of the tooth, however, must be avoided if great inflammation or considerable swelling surround it. It is likewise proper to draw the tooth when there is a fistula near it, or appears to be caused by the caries of it. It cannot be made to unite or fill up, unless by drawing the tooth. But the extraction of the canine teeth is attended with more risk, on account of the roots being deeper seated; nor is the extraction of the last or middle grinders, which are provided with three or four roots, attended with less difficulty. For the eye may be injured by the drawing of the upper teeth; and the extraction of both the upper and under teeth not unfrequently occasions hemorrhage, inflammation, laceration, and fracture of the jaw. The hemorrhage is sometimes so great that it cannot be allayed by the usual styptics. I have read of a physician having allayed an hemorrhage which had continued five days, by applying a dry sponge to the socket of the tooth, and pressing it hard with the hand *. I myself once stopped a similar hemorrhage, proceeding from the very same cause, and which had continued for upwards of twenty hours, by filling the socket with the powder of the fungus agaricus, and afterwards gradually laying thin slices of it above, that they might be pressed and kept in their place by the teeth of the other jaw.

* *Comm. Lips.* vol. iv. p. 91.

355. As it is known that a tooth when cutting occasions odontalgia, the gums ought first to be softened by means of oily, fatty, and mucilaginous remedies, and afterwards, if necessary, they may be lanced, in order to open a passage for the tooth. The cure of abscess, fistula, together with that of the *parulis* and *epulis* of the gums, is the province of surgery. If the teeth become loose, and the gums waste, we must inquire into the cause of it. If the tartar accumulate between the gum and the teeth, in such quantity as to separate the flesh from the tooth, it must be dissolved by acids, or removed by means of a proper instrument. If relaxation of the ligaments and gums render the teeth loose, they ought to be strengthened by means of astringent and stimulant remedies. But when corroding, acrid, or acid lymph produces this effect, antacid and balsamic remedies, both external and internal, ought to be called to the patient's aid.

C H A P T E R XV

CONCERNING

THE SWELLING OF THE PAROTID GLANDS
AND JAWS*.

356. SWELLINGS of the parotids are properly divided into three kinds. The *first* are, those which supervene in acute fevers, especially malignant or pestilential fevers. I have already treated of these elsewhere (Vol. I. par. 302.). The *second* are, those which succeed to chronic diseases, scrofula, lues venerea, scurvy, and a scirrhus and cancerous diathesis. These are referable to other diseases, the cure of which is to be delivered elsewhere, or may be referred to surgical diseases, concerning which it is not my business here to treat. But the *third* kind occurs when the parotid and maxillary glands suddenly become swelled and painful, and are not long attended with severe, or at least not dangerous symptoms, if they be properly treated, being in a short time completely resolved. Some affirm that children and young people only are attacked with such tumours. But although I confess that they are more liable to this complaint, experience has shewn that sometimes no age and neither sex remains exempt from them, particularly when they pre-

vail epidemically; for they sometimes prevail like an epidemic or stationary disease. Nay, in some countries they are said to be observed occurring as it were endemically †. Such tumours, on account of their never undergoing suppuration, but readily disappearing by resolution, are generally considered as being *lymphatic* and *serous*, although they sometimes betray undoubted marks of an inflammatory disposition. Physicians have bestowed no particular name on them, their description and cure being frequently omitted by them. They are therefore classed by some under the head of *angina notha*, or *aquosa*, or *bronchocele* ‡. In Tuscany and other parts of Italy they are commonly named *orecchioni*, *gotoni*, and *gotazze*.

* Synonyms.

The *Orecchioni* in Tuscany. The *Gotoni* about Bologna and Flaminia. The *Oreillons* and *Ourles* in France. The *Parotis spuria* of Lieutaud, *Synops. Univ. Prax. Med.* l. 2. sect. 2. p. 300. ed. Patav. 1777. The *Parotis benigna et fortasse simplex* of Sauvages, *Nosol.* cl. 1. ord. 3. gen. xvii. The *Parotides seroso glutine tumentes* of Laghi, *De Bon. Scient. et Art. Inst. atq. Acad.* T. v. P. i. in the *Opuscula*, p. 117. *Narbonensium morbus familiarissimus, cujus levior gradus Gales, gravior cournudos vocatur.* Lieutaud, l. c.

† *Journ. de Méd.* T. vii. p. 379. where Rochard asserts, that this disease prevails endemically in *Belle-isle en Mer*, and gives an accurate description of it. ‡ Lieutaud, l. c. Tozzetti, *Prim. Raccolt. d'Osserv. Med.* p. 176. Vogel, *De Cogn. et Cur.* &c. § 192.

357. Concerning the nature of these tumours, therefore, I shall proceed to give the observations of others, as well as my own. This disease generally prevails in the winter, but more frequently in the spring, without being preceded by any other taint of the body. It is more hostile to children and young people than to adults; though sometimes, as I have already remarked, it does not spare people advanced in life; it generally succeeds to sudden changes of the atmosphere from heat to cold, and snowy damp weather. It frequently attacks the patient after violent exercise, or exposure to cold, and affects subjects of a warm and bilious temperament more severely. The parotids at first become gently swelled, and in a short time more severely, growing hard, and being affected with a particular tense pain. They occasion scarcely any change of colour in the skin, nay, sometimes exhibit a slight degree of œdema in the integuments, which led Louis to suppose that the cellular membrane was more affected than the body of the gland*. Sometimes, however, the integuments shew no œdematous swelling, but the tumour, being hard and tense, is acutely painful, and suffused, as it were, with an erysipelatous redness. Besides the parotids, sometimes the maxillary glands are swelled along with them, and, in some cases, likewise those of the neck; in other cases the tonsils themselves are affected, so that not only

manducation, but also deglutition are rendered difficult. The size of the tumour varies, being at one time more flat, at another time more raised, and sometimes so great as to deform the whole face and appearance.

* Encyclopæd. *vid.* *Oreillons.*

358. When the disease is mild, it neither excites fever, nor does it detain the patient to his bed. In that case, in general, merely by the assistance of nature, it gradually decreases in a few days, and terminates. Rest, however, in bed, warm and gentle diaphoretic drink, moist and emollient fomentations, or folds of linen dry and warm, or, lastly, anointing them with oily applications, are the means by which we gently and safely promote the resolution. The disease seldom proceeds beyond seven days. But if it be more severe, it either commences with fever, or fever supervenes in it, which is at one time slight, mild, and of short continuance, at another time great and violent, sometimes continuing for several days, generally observing the continued remitting type, and renewing its paroxysms in the evening. That principally happens when the complaint prevails epidemically. Sometimes the power of the epidemic is so widely diffused, as not to allow persons who are in a state of convalescence from other diseases to escape it. In the epidemic which prevailed in the year 1753, at Bologna, observed and very accurately de-

scribed by Laghi *, the fever, when the complaint was severe, did not cease till after the ninth, eleventh, or fourteenth day. It is then necessary to let blood, and even to repeat it; as I myself have frequently experienced, and as Laghi affirms. In general, however, when the fever is less urgent, bleeding being omitted, gentle cathartics, diluent antiphlogistics, spare diet, and emollient fomentations, are sufficient. Sometimes even fomentations are not borne well. The safest of all, and most easily borne, are cataplasms composed of bread, milk, and marsh-mallows, or of the simple pulp of sweet apples. But those topical remedies are to be avoided, which are properly named *resolving*; for they either aggravate the pain and swelling, or occasion hurtful metastases.

* L. c.

359. When the swellings subside, especially too soon, namely, in the first days of the complaint, it frequently happens, that the humour which affected the parotids and other neighbouring glands, by a wonderful metastasis proceeds spontaneously to the scrotum. In which case, not only does the scrotum become swelled, painful, and red, but likewise one or other testicle, sometimes both, are seized with actual inflammation, the fever at the same time becoming more intense and violent. This metastasis taking place from the parotids to the testicles in epidemic diseases, has been clearly noticed by Hippocrates *,

and was observed in the spring of the year 1750, by Tozzetti †, and after him, in the year 1753, by Laghi. Nor did this uncommon kind of metastasis escape my own notice much about the same time at Fayence, where the disease prevailed epidemically. Others have observed the same phenomenon, among whom I must not omit the name of Rochard ‡, a French author, together with that of Pratolong, who very lately (an. 1782.), observed it at Genoa, a physician of learning and extensive experience, as a letter of his, sent to me about the end of the month of May of the same year, proves him to be. When, therefore, the swelling of the scrotum and testicles supervenes, causing an aggravation of the fever, the bleeding must immediately be repeated, or set on foot, in such patients as have not already been bled, and emollient fomentations must be employed, not only to alleviate the pain and inflammation, but to cause the gentle and gradual subsiding of the swelling. For such swellings, both of the parotid glands and of the scrotum, terminate by resolution, never, so far as I know, by suppuration, if they be properly treated. From whence it appears, that the matter of them is mobile and soluble. Laghi, however, observed, that young people previous to puberty, and those advanced in life, were not liable to this metastasis || ; and that women, although they were seldom attacked with these swellings, on the sub-

siding of the swelling were seized with pains of the loins and pubes, just as if the catamenia were about to appear; which either broke out prematurely, or, in place of them, unusual itching and a sense of heat were felt in the pudendum §.

* *Epid. Stat.* 3.

† L. c.

‡ *Journ. de Med.* T. vii.

|| L. c.

§ In the Medical Journals published this very year (1785.), by Botoni, this complaint is twice or thrice mentioned as having been translated to the testicles in men, and to the groin in female patients.

360. It is likewise worthy of remark, that a good many patients, both male and female, as the disease advances, or when it begins to take a turn, or has already done so, are occasionally troubled with frequent vomiting, and continually distressed with it for some days; which was first noticed by Laghi *, and has lately been confirmed by my own observation. Those persons in whom this vomiting occurs, although their tongue be clean, the taste of their mouth not bitter, and their appetite not impaired, while no vitiated fluid is thrown up, but merely the meat and drink, are generally freed from the anxiety and restlessness which they experience after taking meat or drink; which circumstance gives reason for suspecting that the vomiting is rather referable to spasms of the stomach, than to a vitiated state of the chyle. In fact, paretics and stomachics, both internal and external, and the mildest

clysters, are the only means which gradually remove it; there is very seldom occasion for cathartics. But Laghi mentions that vomiting also occurred in those persons in whom no translocation to the testicles took place †; and he therefore conjectures that it depends upon the metastasis. Which though I allow may sometimes happen, still I cannot be induced to believe that the metastasis to the stomach is always its cause; because I have sometimes seen it come on when the swelling not only continued, but even proceeded to increase. Others, on the swelling disappearing, are attacked with an headach, not unlike a periodical hemicrania, which to a certainty goes off on the swelling of the scrotum or testicles supervening ‡. But when neither of these accidents happens, frequently the morbid humour being directed towards the breast, a cough arises. Whatever part of the body is attacked by the violence of the disease, the fever immediately increases, accompanied with thirst, watching, anxiety, and constant tossing of the body ||.

* L. c. † *Id. ib.* ‡ *Id. ib.* || *Id. ib.*

361. Besides these kinds of metastases, that which has been mentioned by Prætorius is the most singular*. For he mentions that upon those tumours an anasarca supervened, completely like that which sometimes supervenes upon scarlet-fever, attended with the greatest difficulty of

breathing, and acute fever. Hence he suspects that the swelling of the parotids may be classed among the *eruptive fevers*, or febrile exanthematic diseases. For this suspicion seems to have a great appearance of truth, if we turn our attention to the preceding or concomitant diseases, which are generally exanthematic or eruptive † ; as also to the nausea, vomiting, sighing, anxiety, debility, tendency to fainting, watching, restlessness, and similar symptoms which are conjoined with this disease, and are in common to it and the eruptive diseases. This suspicion receives strength and support from the opinion of certain authors, and the common persuasion of the vulgar, that the complaint is communicated by contagion. To this opinion Laghi himself was in some measure disposed, though a man of the utmost judgment and caution ; for, while he investigates its causes, he seems inclined to believe that the epidemic, of which he has given so ample an history, was brought to us by the winds from Africa, where the disease had prevailed pestilentially. Be this as it may, it is very much to be wished that physicians of eminence would turn their attention to the true nature of this disease, and determine, by repeated experiments, whether it belongs to the eruptive or contagious diseases, as they are called, or not.

* *Epist. cit.* His words are : “ The only complaint which can be said at present to be epidemic in this city, is that

which goes under the name of *gotazze*, or the disease of the cheeks, which is called by the Florentines *the disease of the ears*. In which, besides the parotids, the genital parts are enormously swelled, with considerable fever, and in some others I have seen upon the parotid swelling an anasarca supervene, in every respect like that which sometimes supervenes upon scarlatina, with a very great difficulty of breathing, and an acute fever. Do you believe, Sir, that this disease can be classed among the eruptive fevers?"

† In the year 1753, the epidemic swelling of the parotids at Bologna was preceded by the petechial disease and small-pox, with which sometimes a swelling of the parotids was conjoined. After the petechiæ and small-pox had ceased, the swellings of the parotids alone began to prevail epidemically. In the disease which in the year 1782 not only prevailed in certain districts, but also here at Milan, the measles first arose sporadically, and afterwards epidemically. These swellings of the parotids prevailed at the same time at Genoa, as I have already said, and at Turin. I do not know, however, whether the eruptive diseases prevailed there at the same time.

362. In the epidemy which I have already mentioned as having prevailed in the year 1782 in common to us with the inhabitants of Genoa and Turin, no metastasis to the testicles was observed, as elsewhere; but, in place of it, very frequently most of the patients were harassed with a troublesome vomiting, accompanied with a sense of weight at the epigastrium, after the tumours and fever were already discussed; which seems to confirm the opinion of Laghi, that the vomiting had arisen in them from a metastasis, as he had observed in his patients at Bologna (360.). I therefore think that the vomiting which

occurs at the beginning of the disease, or at its height, is to be distinguished from that which comes on at the conclusion of the disease. It is probable that the former depends upon the derangement and dilatation of the nerves, such as usually takes place in the exanthematic diseases; and that the latter is occasioned by a metastasis. For patients affected with the latter in not a few instances have been restored by gentle and repeated purging, by which those labouring under the former are more and more deranged. The disease appeared among us in the month of March, after a great fall of snow and sudden frost. The parotid and maxillary glands swelled enormously, and became tense and remarkably hard. They were not, however, very painful. The colour of the skin was scarcely changed; and if any redness appeared externally, it was extremely slight. But they were accompanied with a constant, irregular, and generally violent fever, except a few patients, who were more slightly affected. Those who were more severely affected, laboured under debility, nausea, vomiting, frequent sighing, and a tendency to fainting, particularly in the erect posture. At the beginning, gentle cathartics, clysters, diluent and diaphoretic drinks, and bleeding, were not omitted; the blood, however, was covered with no inflammatory gluten, which is generally wanting in these diseases; as also ap-

pears from the observations of others. The disease goes through its stages generally in eight or nine days, and is resolved either by a diarrhœa, or sweat, or discharge of urine, or by an epistaxis. In children and young people a discharge of blood from the nose occurring on the fourth or seventh day, at Bologna, was generally observed to effect a true crisis, by which they were immediately restored to health *. It does not appear that any person ever died of this disease, however violent in degree †. But nobody ought to rashly rely upon himself, and despise the disease on account of its mildness, as a fatal translation to the lungs or brain may occasionally occur ‡.

* Laghi, l. c. † *Id. ib.*

‡ At the same time that the disease prevailed at Milan, it likewise occurred epidemically at Magenta. I hope it will not be considered as superfluous, should I here translate the description of it, sent to me on the 6th of June 1783, by Berretta, the physician of the place. “It is very true, as you have been informed, that last year, about the beginning of the spring, not only here, but in several of the adjacent districts, an epidemic disease, affecting the parotid glands with swellings, prevailed. The disease was named by the common people *la sgualtera*; concerning which a physician is scarcely ever consulted. I shall mention, however, both whatever I myself had an opportunity of observing, as well as what I could collect by the most careful inquiries of those who were attacked with the disease. The symptoms which I observed to precede and accompany this swelling of the parotids were almost always pains of the joints and remarkable lassitude of all the limbs. No

symptom ever occurred to me which was peculiar to the exanthematic fevers. I except the case, however, of a boy of twelve years of age, who, before his parotid glands had begun to swell, was distressed for nearly three days with frequent bilious vomiting, anxiety, restlessness, and, at the same time, considerable fever, which distressed him for some time, even after the appearance of the swellings. The fever sometimes preceded, sometimes followed these tumours, at other times was conjoined with them. When the fever supervened, it never continued less than three days, and never more than eight; nor did the tumours always disappear completely, but, after the fever had been intirely disscussed, they still continued for some time. Those who were seized with the tumour and fever at the same time generally complained of pain of the throat, difficult deglutition, and arthritic pains over the whole body. The few patients who applied to me for advice were treated with bleeding, when the strength of the body and violence of the fever required it, with cathartic salts, and the copious drinking of an infusion of elder-flowers, to which nitre had been added; and I promoted the diaphoresis the more willingly, because I observed the fever generally resolved by copious sweats. I applied externally to the tumours an emollient cataplasm composed of milk, elder-flowers, and the flour of lint-feed; by the proper continuation of which they were almost always successfully resolved. But if they continued obstinately, I then employed a resolving liniment, composed of spermaceti and camphor, to which they at once completely yielded. For I never observed them terminate in suppuration, or in any other way, nor by a metastasis," &c.

363. Some specimen of this epidemic (362.) will be afforded by two histories, the one of which exhibits a view of the more violent species of the complaint, the other of the milder kind. A young man of twenty-three years of age, of the sanguineo-

melancholic temperament, who was accustomed to continual exposure to the cold, winds, and night air, was attacked with this complaint. On the *first* day, the parotid glands began to swell and grow painful, without manifest fever. On the *second* day, their swelling was increased, and, at the same time, the maxillary glands became swelled, accompanied with slight fever, in consequence of which he was obliged to betake himself to bed. On the same day, he took the *sal catharticus amarus*, by which he was well purged. On the *third* day, after the fever had increased, attended with a strong and great pulse, frequent sighing, and anxiety, and tossing of the whole body, accompanied with pain, and some redness of the skin, he was bled in the arm, to the extent of ten ounces, which exhibited no inflammatory diathesis. After this the fever remitted somewhat, but not the tumours, which, on the contrary, increased until the fifth day. In the mean time his appetite was good, he slept well, and, while he lay in bed, seemed to have sufficient strength. He only complained of occasional languor at the stomach, and, if he rose out of bed, a tendency to fainting. On the *fifth* day, a gentle cathartic was again administered to him, but without effect. In the evening the fever was aggravated, without any symptom of cold or shivering. He had a restless night. In the

morning of the *sixth* day the fever was very violent, he complained of great heat internally, and, moreover, was distressed with sighing, nausea, restlessness, thirst, and headach. The arteries beat violently. Ten ounces of blood were therefore drawn from the other arm, in which, however, nothing morbid appeared. In the evening he twice vomited whatever he had eaten or drunk, after which he was somewhat relieved, and began to remain quiet. In the morning of the *seventh* day, the fever was less, the head free, and the face and parotid glands less swelled; but frequent vomiting occurred after drinking, which, however, brought off nothing except what had been drunk, which was sometimes mixed with a little yellow bile. In the evening the same vomiting occurred. By repeated injections of oil the bowels were relaxed, and natural stools passed. After this the vomiting was gradually allayed; so that upon the night of the *eighth* day, rest and tranquil sleep followed. Upon the *ninth* day, all the symptoms were a great deal better, the patient being almost intirely free from fever. Upon the *eleventh*, the tumours almost intirely disappeared. The patient was allowed for drink an infusion of tea-leaves, lemonade, and purified whey; but every kind of drink deranged the stomach and occasioned vomiting. Externally, emollient fomentations were employed, until the second attack of the fever. It was then considered as adviseable to abstain

from all topical applications, which appeared not to be attended with success. The resolution was completed by the gentle motion of the fever, by the spontaneous vomiting, and by the looseness obtained by injections, together with a copious discharge of urine, rather than of sweat. Ten or twelve days afterwards, a man of sixty years of age, who had constantly attended this patient, after walking some time—contrary to what he had for some time been accustomed to do—in the open air, was attacked with a slight swelling of the left parotid gland, accompanied with moderate pain. On the *second* day, the pain was increased, and stretched to the ear, impeding manducation. Upon the following night, the pain becoming more distressing prevented the patient from enjoying almost any sleep. Wherefore, on the *third* day, although he was free from fever, he was obliged to remain in bed. He was purged by means of a gentle cathartic, and blood was drawn from the arm, which was found very firm and dense. The pain was greatly mitigated by the bleeding. The part affected with the pain was defended from the cold and external air by the application of a linen cloth. Only once during the night, when the pain was very urgent, a bread-and-milk poultice was applied, in consequence of which, not only the pain, but the swellings were allayed. In six or seven days he almost entirely recovered, nothing remaining but some difficulty of chewing,

which continued for a few days. The complaint did not pass, as it generally does, from one parotid gland to the other. Vomiting, anxiety, and fever were absent; nor did the tumour grow to such a size as I had observed it in others. Probably the predisposing cause being less in degree rendered the disease less severe.

364. In the beginning of September, in the year 1783, this complaint again appeared; but as a sporadic, attacking those persons principally who had incautiously exposed their head and neck to the moist cold air, especially of the evening; but it was generally mild. A young man of the sanguineo-phlegmatic temperament, and of a corpulent habit, after having been engaged a considerable time writing in the evening, having thrown open the windows on one side of him during damp cold weather, shortly perceived a slight pain in the left parotid gland. The pain increased at night. He applied a bag containing tepid flour. Next morning the parotid appeared very prominent, its colour was almost natural, and it was not very hard; nor was the pain very great; a particular uneasy sense of tension, however, was felt, extending to the neighbouring parts and head; but there was still no fever. His physician advised him to defend the parotid from the cold air, to speak little, to abstain from chewing, and pretty frequently to drink an infusion of

elder-flowers, and occasionally to take a few spoonfuls of a mixture composed of nitre, rob of elder-berries, and syrup of rasp-berries, and at the same time to promote perspiration by the heat of the bed. In the evening he was feverish ; at night he sweated and slept well. Next morning the tumour appeared to have spread. His pulse was frequent. The other symptoms continued the same. He enjoyed a calm night's rest. Upon the *third* day, in the morning, the parotid gland had considerably subsided. A gentle cathartic was then given, composed of the *sal mirabilis* and syrup of manna, by which the belly was twice purged. In the evening he felt himself better. In the morning of the *fourth* day the pulse was natural, the urine deep coloured, the tension and swelling much less. On the *fifth* day the swelling disappeared intirely. Upon the *sixth* he began to move abroad. No vomiting nor metastasis to the testicles followed. But not a few other patients, at that time labouring under this kind of swelling, on its disappearing were distressed for some days with vomiting ; although they all of them shortly recovered.

365. From what has already been said, I think that the nature of this disease, and the plan of treatment adapted to every degree of it, sufficiently appear. For, while I delivered its description and traced its progress, I did not omit the

particular remedies which experience has shewn to prove serviceable, according to the nature of its symptoms, or their variations. For no person will take upon him to doubt that it is a swelling of the lymphatic glands. But whether unusual tenacity of the lymph alone, or its motion being retarded, or any foreign body being combined with it, be the cause of the complaint; or whether exposure to the cold and moisture of the air, either by corrugating the lymphatic vessels and glands, which are not sufficiently covered, or by suppressing the perspiration, ought to be considered as an occasional cause only, or as the efficient one, every body is at liberty to judge for himself: as the subject is still involved in great obscurity, and requires many more observations than writers have hitherto left us, before we can determine the point.

C H A P T E R XVI.

OF GLOSSITIS, OR INFLAMMATION OF THE TONGUE.

366. WE are informed by Vogel, that the tongue becomes inflamed and swelled of itself, that is to say, unconnected with angina and other

diseases, constituting a dangerous, acute, and primary disease, and that within a short time, namely, within five or seven days, it occasions suffocation *. He named it *glossitis*, and mentions his having treated it twice. But before his time several other authors had made mention of inflammation of the tongue, and the various swellings to which it is subject, particularly Sennert † and Riverius ‡, the latter of whom has written an express chapter on the subject. A fever comes on, accompanied with cold, immediately followed by excessive heat ; which is a mark in common to other acute diseases. But while the febrile cold is still present, the tongue is suddenly affected with pain, redness, heat, and swelling, which increase more and more. Difficulty of speaking and swallowing shortly arise, gradually increasing to such a degree, that the power of both are lost. There is a spontaneous discharge of thick, glutinous saliva ; the face is red, the head pained, and the patient distressed with almost constant watching. The tongue being very much swelled, cannot be moved at all, nay, on account of its increased bulk, it is thrust out of the mouth. As the patient can neither eat nor drink, he is harassed with craving hunger and great thirst. And the breathing becoming gradually more difficult, at length threatens actual suffocation.

* *De Cogn. et Cur. Morb.* § 180. † *Med. Pract.* T. i. Oper. T. ii. l. i. P. 3. sect. v. c. 2. p. 333. ‡ *Prax. Med.* l. v. c. i. p. 86.

367. The inflammation of the tongue is doubtless attended with very great danger ; for, if it be not quickly resolved, or if it do not terminate in an abscess, which is quickly to be opened, by obstructing the breathing it occasions a most miserable death. This shocking catastrophe, therefore, must be prevented as speedily as possible. All the more active remedies for discussing inflammation must be called to aid, and blood must be copiously drawn, particularly from the jugular or sublingual vein, and it must be frequently repeated, as occasion may serve ; bloody cupping-glasses must be applied to the back ; the belly must be briskly purged, or at least injections must be thrown up four times a-day, and the neck surrounded with proper cataplasms. In the mean time, if possible, the mouth must be washed frequently with an emollient decoction, composed of milk and honey. Concerning primary inflammation of the tongue, let these observations suffice. The secondary species, which supervenes on other diseases, or is conjoined with angina, will be discussed elsewhere. Nor is it of any consequence for me here to treat of other diseases of the tongue, as its enlargement, œdema, swelling, ulcers, fissures, and cancers, as writers upon surgery take all these affections into consideration.

CHAPTER XVII.

OF ANGINA.

368. THE complaint named by the Greeks *συνάγχη*, or *κυνάγχη*, is called by the Latins *angina*. The former derive the name from an halter, as if they named it suffocation; the latter derived it from *ango*, to *suffocate*. They formerly employed this word to denote nearly the compression of the fauces and throat, and therefore the greatest difficulty of breathing, as appears from the works of Aretæus * and Cœlius Aurelianus †; afterwards they transferred it to denote at the same time difficulty of swallowing ‡.

* *De Causs. et Sign. Morb. Acut.* l. i. c. vii. † *Acut. Morb.* l. iii. c. i. ‡ Corn. Celsus, l. iv. c. 4.

369. All agree that this is a very acute disease. But authors are not agreed whether or not it always depends on inflammation; for Cœlius Aurelianus, in treating of it, avowedly excludes fever from *angina* *. Aretæus also at one time ascribes it to inflammation, at another time to other morbid affections †. Hence, induced by the authority of the ancients, as well as by that

of succeeding writers, I do not hesitate to suppose that there are various kinds of angina, which differ both in their nature and seat; and this I do the more confidently, because the great Boerhaave, to follow whose opinion it is an honour †, had a similar view of the subject. I shall therefore first define what I consider angina to be. I give the name of *angina* to that affection of the fauces, larynx, pharynx, and neighbouring parts, which, in a remarkable manner, injures the power of respiration or deglutition, or both together, on account of some impediment situate in the fauces. By which definition it is easily distinguished from other kinds of difficult respiration, or deglutition, the cause of which is not situate there, but which immediately proceed from morbid affections of the breast or œsophagus; as in them no sense of strangulation or pain is perceived at the fauces.

* L. c. † L. c. ‡ *Aphor. de Cogn. et Curand. Morb. § 783. et seqq.*

370. Hence we proceed to the varieties of the complaint. As this affection, therefore (369.), arises from different morbid affections of these and the neighbouring parts, namely, from inflammation, catarrhal obstruction, œdema, swelling, abscess, scirrhus, spasm, palsy, phagedenic ulcer, aphthæ, gangrene, and from the adhesion of foreign bodies, various species of angina may be established,

as the inflammatory, catarrhal, œdematous, apothematous, malignant, gangrenous, ulcerous, aphthous, convulsive, paralytic, scirrhus, accidental, and so forth. The variety of the parts affected also gives rise to various distinctions. Hence it is divided into *external* and *internal*; the former is named by some of the moderns by the particular appellation of *parasynanche*, namely, when it affects the external parts of the pharynx: but when it affects the external parts of the larynx, it is named *paracynanche*. While they tell us that the internal species of the complaint, affecting the pharynx, is to be named *synanche*, and, when it affects the larynx, *cynanche*. Although it is proper to observe that the ancients employed these terms intirely differently; for they named that affection *cynanche*, or *canine angina*, in which the fauces, tongue, and face became swelled; and that *synanche*, which suffocated the patient without any external mark of disease. Hence the former was considered by them as *manifest*, and the latter as *occult* and lurking; and, next, they were accustomed to denominate the slighter, or *spurious angina*, by the term *parasynanche*.

371. Having premised these remarks concerning the meaning of the terms, according to the ancients and moderns, it is proper briefly to enumerate the remote causes which generally give rise to angina. Such, in particular, are the sup-

pression of the sweat, insensible perspiration, and of every other customary evacuation; sudden changes of the weather, or the transition from a warm to a cold situation; violent exercise; riding against the wind; great straining of the voice; vociferation; declamation; the blowing of trumpets, particularly in cold air; violent coughing, or frequent vomiting; the use of mercury; the exhalation arising from the lime of newly-plastered walls; the swallowing or inhaling of acrid poisons or medicines; a translation occurring in acute, malignant, or exanthematic diseases; a peculiar state of the air; an epidemic miasma; the repelling, or spontaneous retiring, of erysipelas, gout, or arthritis; scorbutic, venereal, and strumous affections, as well as those proceeding from a bad state of the fluids, hysteria, and hypochondriasis; nervous affections; any tumour internally or externally growing to the fauces, as scrofula, excrescences, sarcoma, polypi, membranes, bronchocele, swellings of the parotids, and other kinds of tubercles; sharp-pointed things, small bones, and other small bodies, falling into the fauces, or adhering there, or entering, drawn, or forced into the larynx, or remaining in the pharynx or beginning of the wind-pipe, and by their bulk obstructing the passage, pressing upon it in all directions, and irritating it; the induration, ulceration, or destruction of the epiglottis; luxation of the os hyoides, or vertebræ of the neck,

in young people. For from these causes almost every kind of angina arises. According to the variety of the causes, the part affected, the degree of violence, and symptoms, the nature of the complaint varies, as well as its danger, and the method of treating it; which will appear more clearly from the particular description of each of the species, to which I shall now proceed.

THE INFLAMMATORY, OR TRUE AND LEGITIMATE,
ANGINA.

372. THE difficulty of respiration, or deglutition accompanied with pain, heat, and swelling, which is occasioned by inflammation of the fauces and neighbouring parts, is named *inflammatory angina*, and by others *true and legitimate angina*. In it, sometimes the velum pendulum, uvula, tonsils, muscles of the os hyoides and jaw, and root of the tongue; sometimes the pharynx and upper part of the œsophagus; sometimes the larynx and beginning of the aspera arteria, are inflamed. Sometimes, also, several of these parts are affected at the same time.

373. When the velum pendulum, uvula, tonsils, root of the tongue, together with the muscles, glands, and membranes of these parts, are affected with inflammation, and the complaint extends to the confines of the nares and Eustachian tube, not only a continued and violent fever, at-

tended with redness of the face, comes on, but likewise, if the fauces be examined with the mouth open and the tongue depressed, swelling and a blood-red colour appear in every part that admits of being inspected, which is likewise conspicuous externally under the jaws; a great degree of pain is felt in the same part; the deglutition is performed with the greatest difficulty and pain; the breath also is drawn with difficulty, and is in some measure impeded; the fauces are either parched or obstructed with a viscid and tenacious phlegm, and the mouth can scarcely be opened; the part where the inferior jaw is inserted in the temporal bone is frequently painful and swelled, and an acute pain is generally propagated accompanied with an uneasy tinnitus to the internal ears. This last symptom often occurs in those who labour under lues venerea, as Boerhaave, in particular, affirms*.

* L. c. § 805.

374. If the pharynx and upper part of the œsophagus be affected with inflammation, this affection at once appears on inspection of the throat; the respiration is not impeded; but swallowing is scarcely practicable, and excites an acute pain; not only on account of the swelling of the parts through which the ingesta pass, and the exercising of their action, but also on account of the distraction which the pharynx suffers while in the effort of swallowing; the larynx, os hyoi-

des, and base of the tongue, are drawn upwards and outwards by the styloglossi and genioglossi muscles of the tongue, by the geniohyoidei and mylohyoidei of the os hyoides, and by the hyothyroidei and cricothyroidei of the larynx: which action, while it is performed, likewise causes some violence to the pharynx. Hence the things to be swallowed, on account of the pain and swelling of these parts, are repelled to the internal passages of the nose, from whence they again come out, or, being forced or falling into the glottis, occasion a violent cough. On which account the want of both meat and drink parches the fauces and body, vitiates the fluids, and aggravates the fever itself.

375. But when the larynx itself, particularly the glottis and internal parts, all the way to the trachea, are affected, the voice becomes very shrill; a dry and almost suffocating cough comes on; a most severe pain is felt during deglutition, not in consequence of the deglutition, which is then generally free, but in consequence of the motion of the larynx, which must then be raised; and this pain becomes much more acute when the patient is obliged to speak or to roar; the muscles of the larynx and glottis, which are affected with inflammation, acting in such a variety of ways; the respiration becomes small, slow, stertorous, and suffocating; and it is

generally very quickly succeeded by death, in consequence of the breathing being interrupted, although it be unattended with any evident external marks of disease, excepting prominent and horrible eyes.

376. But if the inflammation attack the aspera arteria, or trachea, rather than the larynx, in that case also no mark of disease is observable in the fauces; nor does any thing appear externally, because the swelling, pain, heat, and redness, take place in the internal cavity. But the passage of the trachea, when touched, is affected with more severe pain, by which chiefly the seat of the complaint is detected; the fever becomes exceedingly acute; the severity of the pain is increased by inspiring; the cough is generally exceedingly troublesome, and the voice is clangous and hoarse; the respiration is small, frequent, high, and performed with a great effort and hissing. Hence a fatal accumulation of blood within the lungs very quickly takes place; its return from the head and brain is retarded or prevented; the face becomes swelled, livid, and red; the pulse is surprisingly weak and variable; and the greatest degree of anxiety, suffocation, and death, very quickly close the scene, but not so soon as in the case of inflammation of the larynx, glottis, and epiglottis, because the passage of the glottis, being narrower, is sooner closed up.

377. The more parts become inflamed (373.

to 376.), the more severe and fatal are the symptoms which follow ; inſomuch that the whole face, lips, and eyes, become ſwelled and red ; the tongue is thruſt out of the mouth ; all the ſenſes become dull ; and the patient, in the miſt of ſnooring, delirium, convulſions, and fainting, is ſuffocated in the moſt miſerable manner. According to the diverſity of the parts affected, angina receives a particular name. Hence ariſe the terms of *angina tonſillaris*, *pharyngea*, *œſophagea*, *laryngea*, *trachealis*, and the names compounded of theſe.

378. The perſons moſt liable to the inflammatory angina are thoſe in the prime of life, of the ſanguine temperament, and a plethoric habit ; who are much devoted to rich living, or to uſing vinous liquors, and who are accuſtomed to exerciſe and hard labour, on which account men are more liable to the complaint than women, particularly thoſe with yellow or brown hair, and who may have already once laboured under the complaint. If it do not ſuffocate the patient, which generally happens on the fourth day, but ſometimes much ſooner, it terminates like other inflammations by reſolution, namely, by a copious diſcharge of viſcid ſaliva, by ſweat, by a copious diſcharge of concocted urine, or by abſceſs, gangrene, or ſcirrhus *. That which has been deſcribed (373.), and affects the upper

part of the fauces, threatens considerable danger; which is much greater, however, when all these affections are seated behind the velum pendulum (374.), and may be observed by pressing down the tongue, and opening the mouth wide, on account of their lying lower down.

* Vol. i. *Com. on Inflamm.* par. 62.

379. The patient's immediate death may be expected, if the neck or fauces exhibit no swelling or redness, while in the mean time the most excruciating pain, suffocating respiration, a shrill and acute voice, snoring, and highly raging fever, together with the other symptoms already enumerated (375. to 377.), threaten to cut off the patient in a few hours. The author of the *Coacæ Prænotiones* mentions, that these angina cut off the patient upon the same day, or at farthest on the third day. His words are: "Those anginae which exhibit no evident mark in the neck or fauces, induce violent suffocation, and difficulty of breathing, and prove fatal on the same, or on the third day *." This is confirmed by Hippocrates elsewhere, who asserts: "That these anginae occasion suffocation upon the first, second, third, or fourth day." His words are: "Those anginae are most alarming, and most quickly prove fatal, which are accompanied with no evident mark either in the fauces or neck: but they are attended with a great deal of pain, and admit of respiration when the neck is kept erect.

For they prove fatal upon the first day, as also upon the second, third, or fourth †."

* *Lib. v. n. 4. Ex Jacotii resensione, et editione.* † *Prænot. n. 132. Lind. edit. Lug. Bat. 1665; or Prænot. n. 23. edit. Marinellian.* which is probably the most convenient, as being in the hands of almost every body, or is easily procured. *N. B.* But when I merely point out the numbers for the sake of brevity, it may be proper to observe, that I employ the edition of Linden, which I have quoted.

380. When the swelling and redness disappear without favourable marks, and when they are not directed outwards, and the pus is not discharged with ease, nor without pain, or when these changes do not take place upon the critical days; likewise when the pains cease without an evident cause, or are transferred to the head without a crisis, or any alleviation of the fever having taken place, it is a very unfavourable mark*. It is an equally unfavourable symptom, if, without a crisis occurring, a pain in the præcordia supervene, conjoined with debility and torpor; for it gradually occasions the patient's death, who otherwise feels himself tolerably well †. Likewise the translation of angina to the lungs is alarming, as it cuts off the patient in *seven days*; but if the patient survive that period, suppuration takes place ‡, "unless the collection of phlegm be not brought up ||." Again, "persons labouring under angina, if they do not quickly spit out concocted matter, are in imminent

danger §." But the expectoration ought to be neither viscid, nor thick, nor whitish, nor brought off with great violence, otherwise it denotes an unfavourable symptom ¶.

* <i>Coac.</i> n. 365. 370. 372.	<i>Prænot.</i> n. 135.	† <i>Coac.</i>
n. 374.	‡ Hippocrat. aphor. x. sect. v.	<i>Coac.</i>
n. 367.	§ <i>Coac.</i> 377.	¶ <i>Ibid.</i>

381. It has just now appeared from the prognostics of Hippocrates, that the translation of angina to the head, lungs, and hypochondres, generally occasions death. Their truth is confirmed by the observations of all ages; but the facts which Van Swieten, Boerhaave's commentator, has adduced from his own experience in confirmation of them, are particularly worthy of perusal *. But we must not only consider those metastases as pernicious, but likewise such as take place to other parts, excepting those which take place to the surface. Thus the author of the *Coacæ Prænotiones* observes: "Those pains in angina, which pass to the legs without advantage (or, as others translate it, *without symptoms*), accompanied with fever, are mortal †. And again: "In angina, all those symptoms are fatal, which do not cause the painful affection to strike out. Moreover, complaints of long duration proceed to the legs, and are difficultly and painfully converted into pus ‡." Nor is the translation of the complaint to the intestines, inducing a diarrhœa, always salutary ||. But it is said to

be a much more desperate symptom, when the fæces are suddenly forced out in angina, in consequence of violent strangulation § ; as it implies exhaustion of the strength. Moreover, when the pains cease without a cause (as I have already observed in paragraph 380.), it is a proof of the immediate approach of death ¶. For it is easily understood from the loss of sense, that they are succeeded by gangrene. Likewise the symptomatic angina which supervenes upon exanthematic and malignant fevers, generally proves fatal. Sometimes, however, it has not appeared so bad, particularly in the small-pox, if upon its arising the delirium cease ; but it occasions greater danger in measles and other exanthematic diseases.

* *In aphor.* Boerh. § 809. n. 5. † *Cap.* xv. n. 12.
Ex Duret. edit. vel. n. 373. Lind. edit. † *Ib.* n. 15. vel
 n. 376. *ed. Lind.* || *Coac.* n. 373. § *Coac.* n. 368. vel
cap. xv. n. 7. *Duret. ed.* ¶ *Coac.* cap. xv. n. 9. *Duret. ed.*

382. If these symptoms (379. to 381.) be wanting, or the opposite of them occur, hopes of recovery remain. Hence Hippocrates observes : “ If a swelling take place in the neck in angina it is a favourable symptom, for the disease passes outwards *.” He likewise for the same reason asserts that it is favourable if a swelling and redness appear on the breast. It is every where pronounced as safer in the *Coaca Præfagia* and *Prænotiones*, if the swelling, redness,

and abscess verge upon the most external parts †, particularly if they do not return to the internal parts ||. The disease is frequently relieved by a discharge of blood from the nose, uterus, or hemorrhoidal piles, or by a bilious diarrhœa, or by sweat, if symptoms of concoction from the urine have preceded, and marks of a good crisis be not wanting. Nor is the pain of the joints which supervenes always unfavourable, providing that in consequence of it the angina and its own symptoms be mitigated by it.

* Aphor. 37. sect. vi. † Aphor. 49. sect. vii. ‡ *Coac.*
n. 365. *Prænot.* *n.* 136. || *Coac.* *n.* 365. *Prænot.*
n. 134.

383. From these observations, therefore (382.), as well as from the remarks already delivered concerning the resolution of every inflammation, it will appear whether or not angina will be resolved. It will appear that suppuration has commenced, if the fever, which was violent, and attended with exacerbations, gradually remit without symptoms of resolution or any crisis, and if the pain, from being acute and throbbing, be changed into an obtuse and heavy one; while the swelling, if it can be examined by the hand, fingers, or by a probe, acquires a particular fluctuating softness; and, lastly, if, while the tumour does not disappear, the redness and inflammation in it, and about it, be very much diminished. But when neither resolution, nor

a metastasis, nor any critical evacuation, nor suppuration, take place, and, on the other hand, the inflammation continues violent, with all its symptoms, there is reason to apprehend that gangrene is threatened. That it is already present, appears from the weakness, irregularity, and smallness of the pulse ; from the colour of the fauces being changed from red to livid, or black, or to a very white and pale hue ; from the tumour subsiding, the pain ceasing ; from the fetor of the perspiration ; from the foul colour of the face ; or from its being pale or livid ; and from the coldness of the extremities. Still every gangrene supervening upon angina does not to a certainty prove fatal. Sometimes the gangrene arising from erysipelas being forced by means of fever, and, as it were, by metastasis to the fauces, and depositing a malignant and deleterious matter there,—which frequently happens,—affecting the palate, tonsils, and uvula at least (parts which admit of being touched and examined), and which does not descend deep, nor spread too widely, does not reject every method of cure. Lastly, angina terminates in scirrhus hardness, when being neither resolved, nor having suppurated, nor being affected with gangrene, it leaves a swelling which is unaccompanied with pain, of a natural colour, hard, obstinate, and resisting every remedy, unaccompanied either with fever, or any great difficulty of swallowing. The species of angina named *tonsilla-*

ris, *pharyngea*, and *œsophagea*, is principally subject to this evil ; although the others do not seem exempt from this termination, which however happens less frequently.

* *Comment. on Inflam. par. 62. et seq.*

THE CURE.

384. As in the inflammatory angina, therefore, and particularly in that which affects the larynx and trachea, or which obstructs the fauces by the swelling, in such a manner as to deprive the patient not only of the power of swallowing, but also of breathing, in consequence of the passages being straitened, or impeded, every moment's delay may occasion the greatest danger ; we must have immediate recourse to decided practice, that the inflammatory swelling may be as quickly as possible diminished and resolved, the motion of the blood being directed elsewhere, and its quantity diminished. After opening a vein, therefore, with all dispatch, the blood may be permitted to flow until the face, lips, neck, and eyes lose their intensely-red colour, and become, as it were, pallid ; until the pulse subsides very much, both in greatness and quickness, as well as in point of strength ; but it is not necessary, as some advise, to take such a quantity as to occasion fainting. Following the precepts of such persons too prema-

turely is not unattended with danger. It is necessary in this case to be sure to let much blood ; but the patient's age, temperament, habit of body, sex, manner of living, and strength, together with the climate, ought to be kept in view. In very plethoric and robust people, fifteen or twenty ounces, or even more, if taken from a large wound, will be sufficient at one time, and so in proportion in less robust habits. It is a subject of controversy from what part the blood ought to be drawn. When very great fulness of the vessels is present, accompanied with an evident determination of blood from the lower parts of the body, as happens when the complaint suddenly arises after the suppression of the catamenia, lochia, or hemorrhoidal flux, I should agree with most practitioners in supposing that it is safer to open a vein first in the foot, and afterwards in the hand ; particularly in those persons, whether male or female, whose peculiar idiosyncrasy appears to be such, that they cannot bear bleeding in the upper extremities, without feeling their breast oppressed, or a sense of weight in the head. The most usual and most useful part from which the blood is drawn is the vein of the forearm, as being nearest to the part affected ; for it occasions more revulsion ; nor is it so apt as that which is drawn from the foot to occasion a metastasis of the morbid matter, which is frequently remarkably moveable, to the other viscera,

and particularly to the lungs or abdominal cavity. But if the force of the disease remain unbroken, or again increase, the same bleeding must shortly afterwards be repeated, that the patient may be freed from the suffocation with which he is threatened. And this may be repeated as often as the indication points it out and the strength bears it. But as the most violent angina very quickly of itself occasions suffocation, Van Swieten therefore advises it, although then necessary, to be premised by pronouncing the event to be very doubtful and full of danger, lest the patient's sudden death should unfortunately take place, and be ascribed more to the remedy than to the disease itself *.

* On Boerhaave, § 809.

385. If the opening of these veins do not sufficiently answer our expectations, or if the violence of the disease require a still more efficacious remedy, blood ought immediately to be drawn, if possible, from the jugular vein; than which nothing is more efficacious for diminishing the congestion of blood in the neighbouring parts. For it does not occasion *derivation*, as is commonly supposed, but *revulsion*, as the known distribution of the vessels demonstrates. But if this evacuation do not prove serviceable, or any thing prevent its being set on foot, it is most convenient and advantageous to open the sublingual veins *, to fix cupping-glasses to the back or sides of the

neck, or under the chin or shoulder-blades, after having previously scarified the skin deeply, to purge the belly by means of antiphlogistic cathartics, or at least acrid clysters, to immerse the feet in warm water, and to rub them, as well as to apply irritating and rubefacient substances to the soles, to occasion as powerful *revulsion* as possible. Moreover, the patient must be made to inspire the vapour of warm water, to which some vinegar has been added, if it can be borne; care being taken that it may not be too warm, or of too irritating a kind. The throat ought rather to be wet with milk or tepid posca, than washed with them, that the pain may not be increased by the gargling of it. The vinegar may be omitted when the pain is very severe, that the pain of the parts affected may not be increased by it. In the mean time the frequent drinking of a decoction of marsh-mallows, or of barley, or elder-flowers ought to be enjoined, that the fauces may be moistened, relaxed, and softened; and all the fluids diluted and resolved. With the same view also, oily, mucilaginous, refrigerant, anodyne, and slightly-sweetened linctuses are employed, of which the patient ought to lick some frequently. But when the swallowing is rendered freer, there is occasion for the copious and frequent employment of warm, antiphlogistic, attenuant, and saponaceous drink. Sometimes the uvula, tonsils,

and velum pendulum become so much swelled as to unite, as it were, into a tumour, occupying the whole aperture of the fauces, and almost entirely preventing the entrance of the air; in which case the most immediate, and almost only remedy, is the prudent and cautious scarification of these parts, by the discharge occasioned from which a detumescence very quickly follows.

* Two objections may be offered to the opening of the sublingual veins: *first*, that when slightly scarified they do not pour out enough of blood; *secondly*, that when too boldly cut they discharge more than proper, and occasion an hemorrhage which sometimes cannot be stopped. This can scarcely ever be apprehended in a great congestion of blood; for, on account of the reflux of the blood being nearly prevented, these veins become turgid, and are not so quickly emptied; in the next place, they ought not to be pricked, but cut across, and fomented with warm water held in the mouth, that the blood may flow freely, and for a length of time; which we desire. Thus the first objection is obviated. The other, namely, the apprehension of an hemorrhage ensuing, vanishes at once on considering the diathesis of the blood in true and genuine inflammation, and the smallness of the veins. As the blood is unusually prone to concrete and cohere, it can scarcely happen that it will continue to flow longer than we desire. For in a short time it either spontaneously, or in consequence of contact with the air, coagulates and shuts the mouth of the wound; or, in consequence of the application of cold water, or applying pledgets of folded linen to the wound, and pressing them to it for some time with the hand, it is easily stopped. Lastly, such is the smallness of the sublingual veins, that they are incapable of occasioning a profuse hemorrhage. But these objections to opening the sublingual veins apply with truth to the angina, which is not inflammatory, and to that which oc-

curs in cachectic and scorbutic patients. For in such persons almost fatal hemorrhages arise from the boldly opening of the sublingual veins, as I myself have more than once observed. But I never observed this accident to take place during a true inflammatory diathesis of the blood, although I have frequently had recourse to it myself, and have been present when it was performed by others.

386. In the mean time we must not neglect those remedies, the external application of which is supposed to contribute to the alleviation of the complaint. Most authors are agreed, that at the commencement of the disease, these remedies are to be employed externally which may gently repress the influx of fluid, and somewhat constrict the vessels; and they recommend similar remedies at the decline of the disease. But they guard against them with the utmost care while the disease is advancing, or has already advanced; on account of their compacting the the blood which is collected, and straitening the passages. It is safer, however, even at the very beginning, to occasion derivation and revulsion of the blood, than to repress and strengthen it. Hence it is better to surround the neck with moist fomentations, moderately warm, and constantly applied, and with emollient and gently discussing cataplasms of the same kind, caution being used not to increase the uneasiness by too much heat or weight. The most usual remedies

employed with this view are, decoctions of mallows, marsh-mallows, pellitory, lint-feed, fænugreek, chamomile, misletoe, verbasum, of which also cataplasms are prepared, with the addition of some fat oil, as that of nymphæa, violets, roses, or the like. Some add to these a little oriental saffron, or camphor; but care must be taken that the patient may not be injured by the smell. Others approve of the pulp of cassia applied to the neck like a poultice, with the same view; and, in fact, however simple, it appears to be preferable to many other remedies; it is necessary, however, previously to heat it gently, and not to apply it in great quantity. Some even, influenced by the authority of the ancients, prescribe rubefacient and ulcerating remedies, to be applied to the neck and breast, namely, mustard, salt, squills, or the like, to draw the disease to the surface*. Nay, they apply cantharides sprinkled upon dough, to raise blisters, and mention what very wonderful benefit has already been obtained in this way. It is necessary, however, that the vessels should have been previously emptied, and the force of the fever somewhat blunted. But when there is very great fear that suffocation may suddenly come on, to leave nothing untried, they are of opinion that we must have recourse without delay to tracheotomy, which of itself is neither difficult nor dangerous†. But this may prove serviceable

only, when the cause of the suffocation is not propagated lower down than the larynx ; and not otherwise.

* Swieten, l. c. † *Séanc. Publiq. de la Soc. de Med. de Paris, le 9. Dec. 1779.* Louis, *Mem. de l'Acad. Roy. de Chir.* T. iv. ; and De Martin. *ib.* T. v. *Vid.* Le Blanc, *Op. Chir.* vol. i.

‡ Tracheotomy, which is performed by opening a hole between the rings in the trachea, and introducing a proper tube, as surgeons teach, through which the breath may be drawn, is attended with scarcely any danger. But when any body which has by accident fallen into the trachea requires being extracted from it, it then becomes necessary not only to divide the teguments by a longitudinal incision, and to separate the muscles, but also to cut through several of the rings, and part of the thyroid gland, that the body may admit of being taken out. In which case the operation is not intirely free of danger ; 1. because the wound does not readily unite, nor is it soon covered with a cicatrix ; 2. because the thyroid gland is wounded ; 3. because there is considerable reason to apprehend that an hæmorrhage may take place from the divided blood-veffels, which are by no means inconsiderable ; and, 4. because the recurrent nerves are frequently cut through, which is attended with the loss of speech. But although the first kind of tracheotomy may be performed with more safety and ease, I do not wish that it should be supposed that it is intirely void of difficulty. For it seldom happens that the tube, which is inserted into the hole, sticks in its place, so as not frequently to come out, and render the operation unavailing. But if we attempt to keep it in its place by binding it, and by compression, it frequently excites a cough and pain, so that it becomes necessary to remove it. Hence Fourcroy of late has given it as his opinion, that *laryngotomy* is preferable to tracheotomy ; and proposes the most convenient part in which the operation may be performed, without uneasiness or difficulty. The place which

is best calculated for this purpose is, the triangular space lying between the thyroid and cricoid cartilages ; for in that part no glands, vessels, muscles, or nerves of any great consequence, are cut. Merely the skin and coat of the trachea are perforated by means of a triangular needle, inclosed in a cannula, commonly named a *trochar*. Vicq. D'Azyr supposes that this place is preferable to any other ; and adds, that that operation had been performed with the greatest success upon dogs, (*Séanc. Public. cit.*) But performing the operation in this part will be attended with utility, when the cause threatening suffocation affects the upper part of the larynx, though not if it remain below the perforation. It will likewise be useless, as appears when any body which may have fallen into the trachea requires being extracted. For in that case the trachea itself must be opened, as I shall shortly point out.

387. When the angina seems to have a tendency to suppuration (373.), the part in which the suppuration takes place must be constantly moistened and fomented with milk, butter, the blandest oil, or an emollient and mucilaginous decoction. When the pus is at length concocted, the abscess ought to be immediately opened by means of some proper instrument, to make an outlet for the pus. But when the tonsils have been frequently subject to inflammation, and have never perfectly subsided, being at the same time very apt to relapse into the complaint on any slight occasion ; in that case, if they undergo suppuration, they must not be too soon opened, but we must wait until the suppuration has obliterated every degree of hardness and swelling. For thus, not only is the scirrhus indura-

tion of them, but likewise their great tendency to inflammation, usually prevented. Not unfrequently, merely from compression, or the repeated efforts to swallow, the abscess bursts, and, in consequence of the pus being discharged, the patients, who a little before appeared reduced to the last extremity, are suddenly relieved and restored to health. After the opening or spontaneous bursting of the abscess, it is sufficient to gently clean the ulcer with a decoction of barley mixed with honey ; by means of which alone it is well cleansed, and made to heal.

388. If, on the other hand, symptoms of gangrene begin to appear any where in the fauces (383.), without farther delay we must have recourse to antiseptics ; in the employment of which, however, it is necessary to be careful not to increase the inflammation. All acrid and irritating remedies, therefore, ought to be avoided, or at least employed with the greatest caution. At the beginning of the complaint, when the symptoms of gangrene are still doubtful, it will be adviseable to employ a gargle of the water of elder-flowers, or scordium, slightly acidulated with melon or citron juice, or one of common water and a little vinegar and honey ; or if the patient cannot or will not employ gargles, it may be proper to inject these liquors into the fauces by means of a syringe, the patients in the mean

time being desired not to inspire. When the symptoms of gangrene increase, some of the spirit of sea-salt, or of sal-ammoniac, or of tincture of myrrh, may be added; and these same spirits, received on honey of roses, may be applied by the hand, if possible, or by a pencil dipped in them, repeatedly and lightly, to the gangrenous spots, that their progress may be checked. But, if these remedies fail, the parts affected ought to be scarified. In the mean time, if the power of swallowing return, or become more free, all those drinks which are diluent, cooling, and call forth a sweat, which rouse by their gentle stimulus the vital power, and are opposed to putrefaction, may be given warm, and with a liberal hand. Flowers of chamomile, scordium, peruvian bark, volatile alkali, and camphor, are particularly recommended. Infusions, decoctions, and tinctures are prepared from them. Camphor may be conveniently dissolved in warm vinegar, with the addition of a little white sugar, and mixed with any fluid. The taste is easily corrected by adding the syrup of currants, violets, marsh-mallows, rasp-berries, or the like.

389. It less frequently happens that inflammatory angina terminates in scirrhus (383.). But if this ever happen, the remarks which I have elsewhere delivered must be called to mind *. The tonsils are most liable to this complaint. A scirrhus in them, if it cannot be resolved in any other

way, may be easily cut out by a surgical operation without danger, or may be gradually obliterated by frequent scarifications, and consumed by inducing suppuration. Such are the most useful remedies which are employed in the cure of the inflammatory angina; although all of them are not considered as necessary in every case, and in every species of the complaint. For slighter inflammations of the fauces, uvula, and tonsils, are discussed by fewer and milder remedies. The diet ought to consist of weak broth, the yolks of eggs, hydrogala, or a strong ptisan.

* *Comment. on Inflam.* par. 78.

THE CATARRHAL, OR SPURIOUS, ANGINA.

390. FROM the inflammatory, or genuine, angina we proceed to the *catarrhal*, *lymphatic*, or *spurious angina*. This last species of the complaint differs from the former in the swelling being rather lymphatic and serous than sanguineous, in its being less red, nay, sometimes palish, in the pain being inconsiderable, or at least not throbbing, and in the fever being either absent, or much milder, like that of people labouring under catarrh. The tonsils, uvula, velum pendulum, and adjacent parts are more frequently attacked with this disease than the rest of the fauces. Likewise the most usual subjects of the complaint are

men of a phlegmatic and lax habit of body, people advanced in life, as well as children, and those who live in damp or rainy situations.

391. An accumulation of mucus, lymph, or serum, in the follicles, cryptæ, vessels, and cellular membrane, in whatever manner they occasion irritation and inflammation by their acrimony, quality, or lentor, seems to constitute the proximate cause of the complaint. Among the remote causes are enumerated, a moist and cold temperament; old age or infancy; the female sex; or rainy, hot weather; the winter season; sudden and remarkable changes of the weather; a bad state of the fluids, proceeding from a scorbutic, arthritic, or venereal taint; morbid states of the lymph and lymphatic system; and so forth.

392. To this species of angina (390.) ought to be referred the *angina aquosa*, *lymphatica*, *pituitosa*, and *œdematosa* of authors, in which, to be sure, there is a swelling of the fauces; but they remain lax, soft, without redness, slightly pained, and frequently pellucid, as it were, with a watery tumour; likewise slight pains of the fauces occur without fever, with none, or slight redness, and with a swelling, which is not very warm, and having a transparent appearance, in consequence of which the functions of deglutition and speech are not much injured.

393. The disease is readily recognized from the description hitherto delivered. Swellings of

the cervical, maxillary, parotid, and other salivary or lymphatic glands, sometimes are not wanting. Meade makes mention of a particular species of *angina aquosa*, which prevailed epidemically in Wales; particularly in maritime places, attended with malignant symptoms resembling swelling and distension of the glands of the mouth, palate, and neighbouring parts, and which cut off many patients in two or three days *. Otherwise it is of itself not attended with much danger, and is frequently gradually removed merely by proper diet, and the assistance of nature. When the congestion is more severe and greater, and recurs very frequently, it is more difficultly cured; nay, it sometimes passes into an abscess, or leaves behind it hard tumours. Hence it is apt to pass into scirrhus angina. It cannot be denied, however, that these angina's sometimes become dangerous, namely, when they affect the epiglottis, glottis, and larynx, or otherwise straiten the air-passages, which appears from the difficulty of inspiring, from the seat of the pain, from the roughness of the voice, or aphonia, from the cough, snoring, and other symptoms; or when proceeding from a scorbutic or venereal taint, they excite bad conditioned phagedenic ulcers, deep, extensive, very painful, inflamed around, and obstinate.

* *Monit. et Præcept. Med.* c. 4. p. 52.

394. When the complaint, therefore, requires

the assistance of art, those remedies may be employed which diminish the quantity of fluids, and derive them elsewhere ; which attenuate the thick and sluggish lymph, and digest and dissolve it when in a state of stagnation ; which correct and blunt acrimony ; and restore force and tone to the vessels, fibres, and membranes. Therefore, if any fever be present, although not very acute, if the swelling, pain, and redness increase to such a pitch as to give reason to apprehend the immediate approach of inflammation, or if difficult respiration be conjoined with difficult deglutition, it will not be improper to let blood, but more sparingly than in the inflammatory angina ; and this will be more allowable, particularly if the patient's temperament incline to the sanguine, and if he be of a full habit of body, and in the prime of life and vigour. After having once drawn blood, or twice if necessary, both dry and scarifying cupping-glasses must be applied to the neck and back ; the application of which may be considered as much more advisable when it appears that there is no room for venesection ; nor must we spare the sublingual veins, whenever the tongue has contracted a great deal of fluid, and has become so much swelled that it cannot be contained within the mouth. Infants and children, in whom venesection cannot be performed, may receive relief from the application of leeches, near the veins of

the fore-arm or neck. In the epidemic angina aquosa, mentioned by Meade, which proved so pernicious, that many patients seized with it were cut off within three days (393.); a great many received benefit from this method of treatment being employed: blood was immediately let in great quantity; the belly was then loosened by means of a gentle cathartic or injection, after which blisters of cantharides were applied under the chin, or to the sides of the neck; but if sufficient relief was not obtained, the palate near the uvula and veins under the tongue and sublingual veins were sufficiently deeply scarified to afford an outlet to the bad humour; and internally the compound powder of contrayerva root, with an equal weight of nitre was administered three or four times a-day *.

* Meade, l. c.

395. After bleeding has been performed, if it may have been allowable, it remains, in order to occasion the revulsion and evacuation of the ferous colluvies, to purge the belly by means of hydragogues, namely, manna, senna, the syrupus aureus, the sal catharticus amarus, and diagrydium; and likewise, if it be necessary to act more decidedly, jallap, mechoacanna, and the like; which is particularly adapted to the angina pituitosa, aquosa, and oedematosa (392.). It is proper also to give occasionally internally diluent remedies, and those which by their gentle stimulus promote

the discharge of urine and sweat, as decoctions of burdock-root, rough bind-weed, soap-wort, saffra-wood, and so forth ; to which may be added some simple oxymel, or oxymel of squills, as may appear more proper, that they may prove more powerfully inciding. In this case also, if in any, the æthiops mineral may be employed to the extent of half a drachm twice a-day, which Lange affirms to be the most immediately serviceable remedy in angina *. In the species of the complaint combined with a venereal taint, or accompanied with strumous or scirrhus tumours, this mercurial remedy will be more particularly proper.

* *Miscel. Veritat.* fascic. i. p. 5

396. But sometimes medicines cannot be swallowed. In that case it is attended with the greatest advantage to occasion ulceration in the back-part of the neck, by means of cantharides ; to occasion blisters in the same manner upon the arms ; to rub the feet and legs smartly ; and to purge the belly with acrid injections. Likewise gargles, first of a resolving and discussing kind, and afterwards somewhat astringent and strengthening, are proper. If these from any cause cannot be administered, or the gargling of the throat occasion pain, or if much mucus and viscid lymph adhere to, and obstruct the fauces, a proper fluid ought to be injected by means of a syringe, in order to clear the throat ; but it

must be done in such a manner as not to enter into the larynx: for it might endanger the supervening of suffocation. Nor are those remedies improper which occasion a discharge of saliva, which, however, must be such as not to prove inimical to the inflammation, if any be present, or which, if it be not present, may not excite it. Oxymel of squills, as also the salt of bugle, in both cases, and in both ways, seem to be preferable to others. Besides emollient, discussing, and resolving fomentations, cataplasms, and plasters must not be omitted externally. Nay, their action may be promoted by gentle friction. These are considered as being particularly serviceable when the glands are filled and turgid with tenacious and thick lymph. In which case, moist fomentations supply watery vapour, which being received into the absorbent veins, is shortly carried to the glands, and dilutes, attenuates, and dissolves the lymph surprisingly.

397. Lastly, if the complaint unfortunately terminate in abscess or scirrhus, nearly the same method of cure which I have already recommended (387. to 389.), will be proper. The bad-conditioned and phagedenic ulcers (393.), if they supervene, are cured by the same remedies which are opposed to the known acrimony and dyscrasy of the fluids by which they are cherished. They must, therefore, be timeously op-

posed by antiscorbutic and antivenereal medicines, employed for a length of time, and with a liberal hand ; in the mean time not omitting deturgent and antiseptic topical applications (388.) ; and, if they be foul, employing spirit of vitriol, or the collyrium of Lanfranc. Caution, however, must be used not to irritate the ulcers any longer by acrid substances, after their being first cleaned, when they are pure, red, and very sensible ; but it is then better for them to be nourished and softened by the most emollient and mildest remedies. In the same manner (394. to 397.) must the *angina aquosa* and *œdematosa*, as well as the slight pains of the fauces (392.), when they are without fever, be treated, excepting and omitting the bleeding ; for in them cathartics, aperients, and epispastics, applied even to the neck itself, blisters and diaphoretics alone are sufficient ; although in the slighter degree of the disease, and when those parts which are less necessary to life are injured, it frequently happens, that by a mere attention to diet and abstinence, the complaint is intirely removed in a few days.

THE MALIGNANT GANGRENOUS ANGINA *.

398. I HAVE already shewn (378.), that the inflammatory angina sometimes terminates in gangrene. In this place, however, I am to treat

of another kind of angina, which is malignant, and generally epidemic, particularly hostile to infants, children, and young people, and seems to proceed from a peculiar poisonous and putrid fomes, carried to the fauces, and especially to the tonsils, and burning them like fire. In the former no malignity is present, nor does any putrescency precede ; and the gangrene itself, when it comes on, supervenes only upon the greatest degree of inflammation, to which it is owing ; and generally, especially when it affects the internal parts and spreads widely, towards the conclusion of the disease proves certain death. In the latter the case is otherwise ; for very slight symptoms of the inflammatory diathesis are present, while those of putrescency are well marked and unequivocal ; and the gangrene, which is common to almost all patients, does not come on late, but very quickly ; and although it frequently occasions death, it does not uniformly prove fatal, unless it be propagated to the larynx, trachea, and lungs ; for frequently upon a proper method of cure being immediately employed, the complaint is arrested, and the patient saved. It is therefore not the offspring of the most violent inflammation, but the effect of a caustic, malignant, and deleterious cause. We have named this *gangrenous angina*, on account of the gangrene perpetually destroying the fauces ; and added the term *ma-*

lignant, in order that it may be distinguished from the inflammatory angina, which likewise occasionally terminates in gangrene.

* The Synonyms.

The *Angina maligna* & *gangrænoſa* an. 1751 ad 1753, of Huxham, *Journ. de Med. Octob.* 1757, vol. vii. p. 241. The *Angina gangrænoſa* of Boulland, *Quest. Med.* 1750. The *Angina gangrænoſa* of Chomel, *Differt. ſur l'Eſpec. de Mal de gorge gangræneux de l'an.* 1748. Paris 1749. The *Angina in gangrænam deſinens* of Marteau, *Journ. de Med.* vol. iv. *Mars.* 1756. p. 222. The *Angina maligna ulceroſa* of Fothergill, *An Account of the Sore Throat attended with Ulcers*, an. 1748, 1751. *Vid. Com. Lipſ.* vol. i. p. 493. The *Tonſillarum gangræna* of Meade, *Monit. et Præc. Med.* c. iv. p. 52. The *Peſtilens et præfocans pueros abſceſſus, quem Græcè vocant παιδαρχόνην λοιμώδην, ſive puerorum ſtrangulatum peſilentem* of M. A. Severin. *De Recondit. Abſc. Nat.* ed Francof. 1643. p. 428. et ſeq. The *Cruſtoſa malignaque tonſillarum et faucium ulcera* of Jo. Ant. Foglia, 1620, *De Anginoſe Paſſione*. The *Morbus ſtrangulatorius* of Aetius, and of Signin, *De Morb. Strangul.* Rom. 1636, 1638. The *Peſtilens faucium affectus* of Jo. Andr. Sgambati, *De Peſt. Fauc. Affect.* Neapoli ſævient, 1620, 1624. The *Ulcus Syriacum* of M. Ant. Alaymi, *De Ulc. Syr.* The *Epidemicus ſtrangulatorius affectus* of Jo. Bapt. Carnevalle, *De Epid. Strang. Affect.* The *Gàrrotillo* of the Spaniards, Renat. Moreau, *inter epist. Medicinal.* Thom. Bartholin. cent. i. ep. lxxx. The *Angina gangrænoſa, paedanchone* of Severin and Vogel, *De Cogn. et Cur. Præc.* c. h. *Affect.* § 184. p. 135. The *Angina Maligna, or Morbus ſtrangulatorius, vel peſtilens faucium affectus* of Home, *Princ. Med.* lib. ii. P. 3. ſect. iv. The *Anginae primum genus* an. 1747 of Martin Ghis, *Lett. Med.* let. 2. *ſopra le Angin. Epid. Degli*, av. 1747, c. 1748. Cremon. 1749.

† *Comment. on Inflam.* par. 43. to 47.

399. That this disease, if it was not known to Hippocrates*, was known to, and clearly described, by Aretæus†, and by Aetius‡, is the opinion of most modern authors||. But Vogel differs widely from them, being of opinion that these authors, in that passage, treated of aphthæ, not of angina, as they make mention of ulcers proceeding by degrees from the tonsils to the uvula, tongue, gums, and sockets of the teeth, which is the nature of aphthæ. “And doubtless,” he subjoins, “in the angina gangrænosa, the tongue and gums are free of any taint; nor does it prove distressing for a length of time§.” But Van Swieten entertains a quite opposite opinion; for he grants indeed that a complaint is described there under the name of aphthæ, but that it is very different from the complaint which now goes under that name, being of opinion that genuine gangrene arises from the deposition of a malignant matter affecting the fauces, and that such a complaint comes under the head of gangrenous angina¶. And with regard to Aretæus, in fact, if all the symptoms enumerated in the chapter *Concerning Ulcers of the Tonsils* be well weighed, it will appear much more probable that he does not there treat of the complaint which now is named aphthæ**, but concerning the malignant and gangrenous disease of the fauces, which has a very great resemblance to this gangrenous angina. For, besides the malignant ulcers which abound

with a white, or livid, or black concrete humour, growing in the tonsils; mention is likewise there made of an external redness of the neck, which, like a phlegmon, sometimes breaks out, and is very different from the aphthæ of the present day; while, on the other hand, it is a symptom almost peculiar to the gangrenous and malignant angina. Moreover, the complaint described by Aretæus is not a chronic one, as persons labouring under it are there said to expire not many days after, overpowered by the inflammation, fever, and want. Add to this, that Aetius mentions not a word concerning the tongue, gums, and teeth, while, in the enumeration of the other symptoms, he seems intirely to agree with Aretæus. It appears probable, therefore, that what Aretæus remarked concerning the gums, tongue, and teeth, and which Vogel estimates too highly, was rather an accidental and necessary, than a constant and inseparable symptom of the complaint, as it is in true aphthæ, which, besides, do not so quickly run through their course.

* *Coac.* 276. p. 371. *Præn.* 131. *Ep.* 1. 6. sect. 7. † *De Causs. et Sign. Acut. Morb.* 1. 1. c. 9. ‡ *Tetrab.* 2. serm. 4. c. xlv. *De Crust. et Pest. Tonsil. Ulcerib.* || *Home, Princ. Med.* 1. 2. P. 3. sect. iv. Meade, 1. c. Swieten in Boerhaav. § 816. n. 2. and many others of them, who have made mention of that disease before their time. § *De Cog. et Cur. Præc.* h. c. *Affect.* cl. i. § 184. not. *). ¶ L. c. ** L. c.

400. But, leaving this dispute concerning the

antiquity of the disease (399.),—which is neither useful nor necessary,—it is an undoubted fact that it was not described with perfect accuracy until the year 1620 *, for as it raged at that time in Naples epidemically, and pervaded the whole of Italy and Spain, occasioning great devastation every where, it immediately gave rise to the publication of a number of works, among which are chiefly celebrated the commentary of Foglia, *De Anginosa Passione* †, the work of Sgambati, *De Pestilenti Faucium Affectu Neapoli Sæviente* ‡, and that of Severini, *De Pestilente et Præfocante Pueros Abscessu* ||. Lastly, in our own times, since this direful complaint has appeared for some years in the Netherlands, France, and England §, it has been so illustrated by the observations of physicians, that a complete history of it is to be found in the works of Fothergill ¶, Rabbours **, Boulland ††, Marteaux ‡‡, Raullin ||||, Huxham §§, Boucher ¶¶, and not a few other medical authors of reputation.

* Moreau, however, in epist. lxxx. of the *Epist. Med.* Tho. Bartholini, cent. i. mentions that Weir, in the book of *Observationes Rariores*, describes a particular kind of epidemic angina, which prevailed in the years 1564 and 1565 throughout Lower Germany. Likewise in the year 1611, a work intitled *Disputatio Medica* Jo. Alphonsi De Fontecha, *De Angina et Garatillo*, appeared at Alcado de Henarez; as also another the same year, intitled Francisci Perez. *Lib. de Affect. Puer.* &c. But, as I have already observed, since the year 1620, it has been both more carefully described, and much more generally known.

† Neapoli, 1620. ‡ *Ib. an. eod.* || *Ib.* § An. 1739, 1742, 1746, 1747, and 1748. ¶ Lond. 1748. and 1751. ** *De Ulc. Tonsill.* 1749. †† *Thef. Med.* an. 1750.

‡‡ In the year 1752 this complaint prevailed in the Simian Valley in Switzerland, according to Haller and Zimmerman. Langhans, *Act. Helv.* T. ii.

‡‡ *Journ. de Med. Mars*, 1756. ||| *Ib.* & *L. des Malad. Occas. par les Prompt. et Freq. Variat. de l'air*, c. xiii. *Maux de Gorge Epid.* an. 1748, 1749, p. 242. §§ *Journ. de Med.* 1757. ¶¶ *Ib.* T. viii. p. 556.

401. Generally on a sudden a pain and acrid heat of the fauces, accompanied with difficult swallowing of the saliva or any other thing, comes on. The internal parts, when inspected, exhibit an erysipelatous redness, such as appears in a carbuncle, affecting the velum pendulum, uvula, tonsils, and pharynx. The uvula is generally swelled and elongated. One or other of the tonsils, sometimes likewise both, swells, and is soon marked about the middle with a white spot like an aphtha, or with a livid or black one, which is an indication of future gangrene or ulcer. The spot in a short time extends, and occupies the whole surface of the tonsils. The pain is then diminished, and the swallowing becomes easier. But when this eschar first falls off, or is removed, which sometimes happens, it is soon succeeded by another which penetrates deeper. The mouth emits a fetid smell, by which the contagion is communicated to others. Heaviness

of the head comes on ; sometimes blood gushes from the nose ; the sanies of the ulcer falls into the larynx, and excites a clangous cough, and interrupts the respiration, when the patient begins to sleep, in consequence of the complaint being propagated to the larynx and trachea ; nay, it interrupts the sleep when it has already commenced, giving rise to sudden shrieking or loud snoring ; it likewise renders it difficult while the patient is awake ; and thus, in a few days, as if the breath were interrupted by a rope, it suffocates the patient cruelly, the gangrene having extended to the trachea and lungs, nay, sometimes to the pharynx and œsophagus, or even to the stomach ; which last, however, is a matter of very rare occurrence.

402. Sometimes the fever comes on a little before the fauces become painful ; at other times the angina and it commence simultaneously ; sometimes for the first two or three days it appears very mild, and increases about the fourth day. Sometimes at the very beginning it is violent, but does not continue long in the same state, shortly inclining to moderation. The pulse for the most part is weak, quick, and frequent ; rarely great, strong, and hard ; and, when it is so, it shortly passes into a languid, soft, and small one. The febrile accession commences with chilliness, cold, or trembling, which is succeeded by

burning heat. In the evening and at night all the symptoms are aggravated ; but generally abate in the morning, in consequence of a slight sweat flowing.

403. Frequently at the beginning of the complaint the head and neck are affected with pain, sometimes accompanied with vertigo, deep sleep, a sensation as if the bones of the back and limbs were broken, a weight at the pit of the stomach, and frequent sighing. In some cases the face is swelled and red, the eyes water, and are suffused with blood ; while in others it is pale or livid, which happens chiefly when a very bad fetor from the mouth denotes that the gangrene has got to a head. Not unfrequently nausea, vomiting, or a putrid diarrhœa, succeed to each other. The tongue is generally covered with a thick, white mucus ; and although it appears soft and moist, the patient notwithstanding, as Aretæus observes, is parched with thirst ; but this is by no means an uniform symptom, for other authors assert that they are frequently not distressed with thirst. The urine is first passed crude and watery, afterwards yellow and saffron-coloured. Most of the patients are harassed with an indescribable anguish, anxiety, restlessness, perturbation of mind, nay, with delirium itself, and overwhelmed with languor and dejection. The blood which is drawn is generally of a crimson-red colour, hardly concretes, in consequence

of its abounding with a great quantity of serum. Sometimes, however, it shews the buffy coat, particularly when drawn at the beginning of the disease; but the crassamentum scarcely coheres, generally becomes black, and easily dissolves.

404. Nor is it an uncommon thing in this disease, especially when it prevails epidemically, for an erysipelatous redness to break out about the neck, breast, and arms, frequently combined with the measles spots, or for the miliary eruption or red spots to break out somewhere on the surface; nay, sometimes the parotid, maxillary, and jugular glands themselves become swelled and painful. Likewise in some constitutions the gangrene and ulcers have been observed to pass from the tonsils to the uvula, and to eat it through. Sometimes, likewise, as I have already observed, the sanies, in consequence of passing down, attacks the velum pendulum, pharynx, œsophagus, and stomach itself. In other cases the tongue, gums, and sockets of the teeth, are infected with a similar sanies, in consequence of which the teeth become carious and black; although we believe it to have been but rarely recorded, as I have already mentioned, by Aretæus. Nay, it sometimes happens that the force of the disease passes up to the very nostrils, from which it occasions a copious discharge of mucus.

405. I have already said that the deglutition, particularly at the beginning of the disease, is in-

jured. Hence the patients, dreading the pain occasioned by swallowing, either abstain from drink, or, if they drink any, generally reject it by the nostrils. But it commonly happens that when the gangrene arises the pain abates, nay, that when it is perfected it disappears, on account of the sense of the parts being obliterated, in consequence of which the passage for taking in food or drink becomes free. In all cases the voice is hoarse and obscure; but when the violence of the disease descends to the larynx, and nearly interrupts the respiration (for the aperture of the glottis is easily obstructed), the patients not only make a particular noise and hissing, while they perform respiration,—which is a proof of the straitening of the passage,—but also are scarcely able to lie down. On which account particularly, children rise out of bed, and either stand or sit in the erect posture, in order to draw their breath; but in a short time, either from weakness or languor, they again sink down, and toss constantly about until their strength is completely overwhelmed, and they expire in a state of suffocation. This happens upon the same day when the larynx and trachea are manifestly observed to become affected. Those patients, however, who have the good fortune to survive the complaint, experience it in a milder degree, and, assisted by the power of nature, are freed from the poisonous fomes in consequence of an easy and laud-

able suppuration coming on, or a gentle and continued discharge of saliva and sweat. But boys and girls are more liable to be affected with this complaint, and run greater risk before the period of puberty, than those who have passed it and are grown up; although it is a certain and undoubted fact that no age or temperament is exempt from it. But, of all others, those who are most liable to it are the infirm and debilitated, or people with bad-conditioned fluids.

406. The appearance of the disease is frequently very fallacious, insomuch that a person who has not seen it before, is apt to flatter himself with the hopes of an immediate recovery. A surgeon of great experience and celebrity being called to a child of seven years of age, the only heir of a noble family, labouring under this complaint, during the first days of it, not only laughed at a young physician, who had formed a proper judgement with respect to the nature of the disease, but neglected, as a thing altogether superfluous, the scarification of the tonsils, in which a white spot had arisen, attended with the diminution of the pain, and difficulty of swallowing. But two days afterwards, when the disease had almost closed up the larynx, and the face had become livid and cadaverous, he was very much surprised to find that death was fast approaching, without any hope being left. Being then thunderstruck with the novelty of the thing,

he privately requested of the young physician that he would point out the authors who have made mention of so pernicious a kind of angina, so rare and fallacious. The disease, therefore, is apt to deceive the most experienced practitioners. It neither observes critical days, nor has it any certain crisis. It generally terminates between the second and seventh day. A swelling and redness breaking out externally in the course of the disease, generally affords a favourable prognostic. A diminution of the heat, a copious expectoration, and shining of the eyes, are favourable; and *vice versa*. A diarrhœa, rigor, weak and small pulse, prostration of strength, fainting, œdematous swelling of the face, giving a cadaverous appearance, a livid colour, or the striking in of the eruption, and immoderate hemorrhages portend death. Of the ulcers, again, those are safer which are white; those which are ash-coloured are worse; and the livid and black worst of all *. When the disease has begun to take a favourable turn, the external tumour and redness disappear, the cuticle falls off in scales, the fever disappears, and the ulcers are healed up †.

* Home's *Princ. Med.* l. 2. p. 3. sect. 4. *Ang. Malig.* § 6. 8. 9.

† Besides the writers whom I have quoted, the copious observations upon the disease written by Huxham, to be found in the *Medical Journal* of Vandermond, ought to be read, vol. vii. p. 241. *et seq.*

407. From the observations already delivered, it appears that we may conclude that the proximate cause of the complaint consists in a peculiar and malignant kind of erysipelas of the fauces and tonsils, which is induced by an acrid and burning principle. This acrid or putrid principle either arises spontaneously in the body, attacking the fauces and neighbouring parts, or being engendered and evolved by the febrile motion, is deposited in them ; or is received by contagion, or passes from infected to sound bodies ; for that it is contagious appears from its rapid communication by means of the perspiration, halitus, vapour, or sanies, coming out of the mouth. But the remote causes are generally considered as being most of those of other putrid and malignant diseases ; as warm and moist, or too dry air ; a marshy situation ; the drinking of turbid and muddy water ; fermented liquors ; corrupted and acrid herbs, seeds, and pot-herbs ; the employing of alkalescent, acid, or sour articles of diet ; putrid and cadaverous exhalations ; a soft, lax habit of body, or a leucophlegmatic one, or one in which bad-conditioned fluids exist, as a scorbutic, rickety, and strumous habit ; the autumnal or vernal season succeeding to unusual heat ; a peculiar state of the air ; and, probably, an epidemic miasma.

408. These observations I would have to be understood as applying to the primary gangre-

nous angina. For that which supervenes upon putrid fevers, and other malignant diseases, and which is named by Penrose and others *putrid**, appears, if I mistake not, to be widely different from the *gangrenous angina* hitherto described. The difference which exists between each of them, according to Penrose, is as follows: In the gangrenous species, the tonsils and uvula become swelled and inflamed indeed, but they are not very turgid nor tense, being affected rather with a flaccid tumour, by no means hard. The colour is suddenly changed into an ash or livid hue; the pulse and urine generally recede little, or none at all, from those in the healthy state (excepting a few cases, in which, as I have already shewn, the fever is somewhat more violent during the first days of the complaint), and the pain very quickly ceases, or is altogether absent. And, which is the principal symptom of the disease, it comes on suddenly, and very quickly occasions death. On the other hand, the putrid angina gradually supervenes upon putrid fever, and other kindred diseases, and is not so rapid in its fatal termination, generally not occasioning death until after many days. It appears commonly to be more ulcerous or aphthous than truly gangrenous †, as I have already mentioned.

* *A Dissertation on the Inflammatory, Gangrenous, and Putrid Sore Throat; also on the Putrid Fever, together with their Diag-*

nostics, and method of Cure. Oxford, 1766. *Vid. Com. Lips.* vol. xv. p. 338.

† Of this kind, I suppose, was the species of the complaint observed in the year 1748 and 1749, by Raullin, as well as that noticed in a particular hospital, an. 1749, by Laffon, *Mem. de la Soc. Roy. de Med.* T. i. p. 97. For it supervened upon a gastrico-putrid malignant fever, occasioned by the putrid miasma arising from the bodies of oxen and cattle which had not been sufficiently well buried. It was a symptomatic, putrid, and aphthous angina.

409. I suppose that the inflammatory angina, as I have already shewn (398.), differs in like manner from the gangrenous angina, which is now under discussion: 1. because the inflammatory species very seldom, and only when the disease has arrived at the highest pitch of inflammation, as I have already said, terminates in gangrene; 2. because the red colour verges upon a livid and brown, not an ash and white colour; and, 3. because an acute and violent fever accompanies it, attended with a great, violent, and hard pulse, and with blood, which is very apt to concrete, together with other symptoms denoting an inflammatory diathesis. On the other hand, the malignant gangrenous angina, in most persons whom it attacks at the same time, almost at the very beginning betrays symptoms of gangrene; it is rather an erysipelatous than a phlegmonic swelling, and is quickly converted into a fetid ulcer, covered with a white or ash-coloured eschar or crust; it almost always

affects the fauces and tonsils at first ; the blood is thinner, and the fever is accompanied with a weak pulse, or, at any rate, with one which is neither hard nor strong ; with loss of strength ; vomiting ; colliquative and fetid diarrhœa ; and slight delirium. The inflammatory species attacks robust men ; the other, weak people, children, or infants. Lastly, the gangrenous species ought by no means to be confounded with aphthæ. For these last first affect the tongue, lips, and palate, and afterwards the fauces, with small pustules, and generally without being attended with fever, unless they be symptomatic *. But the angina of which we are now to speak, attacks first the fauces, and generally them alone, quickly wasting one or other, or both tonsils, with a pustule, or white, or ash-coloured spot, spreading wide, and of a gangrenous nature ; nor is it ever unattended with fever.

* The aphthæ of the present day do not seem to differ from those described by Celsus (lib. vi. c. xi.), in the following words : “ But those ulcers seem to be by far the most dangerous which the Greeks name *aphthæ*, especially when they occur in children ; for they frequently prove fatal. When they attack men and women, there is not the same danger. These ulcers commence at the gums ; after which they affect the palate and whole mouth, descending to the uvula and fauces, on their attacking which, children do not readily recover from them ; and there is still greater danger if the child be at the breast.”

410. Hence, as the disease very frequently

proves fatal to infants and children, and very rapidly runs its course, we ought immediately to direct our whole endeavours, as far as possible to expel the malignant and putrid fomes from the system, to check the corruption and gangrene, and to support the vital powers. Experience has demonstrated that copious or repeated bleeding not only proves very hurtful, but even accelerates the patient's death. It is therefore generally rejected in this case as hurtful. At the beginning of the disease, however, when the mortification has not yet commenced, when the strength is sufficient, when the patient is in his prime, and of a good and plethoric habit of body, and when the fauces are very much swelled and pained, it may not be altogether improper to let blood once sparingly and cautiously; nay, it is then considered as necessary and beneficial to let blood, if not by opening a vein, at least by cupping-glasses, or leeches. I acknowledge that I have employed either or both of those remedies occasionally with success. But if these conditions do not authorise it, it is proper to abstain intirely from bleeding.

411. But the safest and most useful of all remedies has been found to be the exciting of vomiting, as the great majority of writers acknowledge. For by means of it whatever of a virulent nature lurks in the stomach, œsophagus,

and glands and follicles of the fauces, is very quickly ejected from thence, and thus the fomes of the disease is in a great measure removed. Vomiting ought therefore to be excited immediately by some gentle emetic, as tepid water mixed with oil, oxymel, or squills, ipecacuanha, or tartar-emetic; and promoted by drinking abundance of tepid water, that a more easy and ready excretion of the morbid matter may be obtained. And if one vomiting do not seem sufficient, it may be occasionally repeated, that, by means of this evacuation, the force of the disease may be broken as much as possible. It can scarcely be conceived how much of its malignity and strength the complaint loses by observing this method. The same thing, however, cannot be said of purging; for the excessive tendency of the fluids to colliquation frequently gives rise to immoderate evacuations without the poisonous fomes being expelled from the lurking places in which it was contained. Hence it is adviseable to excite the belly, merely by injections, of which no one disapproves, or to employ only the slightest purgatives, rather than by any cathartic. The belly is purged more advantageously and safely at the end of the disease, particularly when symptoms of a colluvies in the stomach and intestines are present, when the appetite is weak, the belly swelled, or the fever prolonged. For in this way in general all the recrementitious matter which

may occasion a relapse of the disease is very conveniently expelled.

412. Some moderation also must be observed in the exhibition of antiphlogistic remedies. For there is reason to apprehend, that by means of them the salutary efforts of nature by which the system endeavours to free itself from the disease may be improperly checked. It is better, therefore, in general, to support or excite the vital powers by means of gentle cordials, and at the same time to prevent or check the putrefaction by the use of antiseptics. For nature being thus opportunely refreshed more successfully follows the expulsion of the very acrid and deadly fluid, either under the appearance of external erysipelas, or miliary pustules, which in some patients break out on the second or third day, or by means of a discharge of sweat, or gentle perspiration, as Huxham affirms to have frequently observed. With this view he used to employ a certain cordial and diaphoretic mixture, composed of volatile salts, hartshorn, and citron-juice, diluted with simple *aqua alexiteria*, or camphorated julap, or the like.

413. Generally the vegetable acids, as vinegar, citron, orange and lemon juice, that of barberries, raspberries, and currants, diluted with water, and drunk abundantly, are recommended to correct and allay the putrid acrimony, and alkalescent tendency in the fluids. Camphor also, scor-

dium, chamomile, rue, and contrayerva remove putrefaction, and rouse the vital powers to overcome the disease. On this account is to be preferred to all other remedies the peruvian bark, given at the beginning liberally, and at short intervals, in which alone, not only in this very pernicious kind of angina, but also in every malignant species of erysipelas, many at the present day place more reliance, than in all the other remedies put together. But when the blood and other fluids begin to exhibit manifest symptoms of dissolution, in consequence of which hemorrhages and diarrhœas attended with the greatest danger to life arise, it is necessary also to add to them the stronger acids, as the vitriolic, sulphuric, or nitrous acids.

414. The fauces and tonsils at the same time require attention being paid to them. Pringle on the whole rejects the employment of gargles, especially of an acid kind. For he is afraid that the flow of saliva which proves serviceable may be checked by their employment. But he allows a decoction of dried figs, prepared with hydrogala, to which some of the spirit of sal ammoniac has been added, and sets great value upon it *. For by means of it he supposes that the saliva is attenuated and digested, and the glands disposed to its secretion and excretion. But Home recommends the employing of gargles composed of gently refreshing and discussing substances, as

an infusion of red roses, and a little vinegar, or a little tart red wine †. Nor do I myself differ much from him, as at the beginning of the disease, when the spots or pustules have either not at all, or scarcely begun to appear in the fauces, I am in the habit of ordering the fauces to be frequently and gently washed with the water of scordium, elder, and chamomile, with the addition of a few drops of spirit of salt properly sweetened, and a little simple honey or oxymel, or some of the syrup of mulberries. In the mean time, I likewise prescribe milk diluted with the water of elder-flowers, to be occasionally employed, to mitigate the acrid and burning pain, if any such be present.

* *Diseases of the Army.* † *Princ. Medic.* l. 2. p. 3. sect. iv.
§ II.

415. But when a white or ash-coloured extensive or mucous pustule begins to cover the tonsils, in consequence of which the pain is diminished or disappears, most practitioners are of opinion, that we ought to employ more powerfully cleansing remedies, such as honey of squills, tincture of myrrh or aloes, lime-water, a decoction of dried figs, lentiles, and the like. In which case, I prefer to any other vitriolic acid mixed with honey. For by means of it applied several times a-day with a hair-pencil to the

crusty pustule or spot, not only is its progress stopped, but likewise the separation of a putrid eschar is quickly occasioned. On the crust being removed, as soon as I perceive a clean red ulcer, I cause it to be two or three times a-day anointed merely with honey of roses, or with the tincture of myrrh, prepared with the syrup of dried roses. But if the ulcer, after being cleaned, and appearing pure, exhibit remarkable redness round it, and be very painful, I then consider it as proper to abstain from all irritating things, satisfied merely with demulcent and cooling gargles, as milk mixed with barley-water, or emulsions of the seeds of quinces; with which the fauces ought to be frequently and gently washed.

416. Van Swieten, when a particular redness appears diffused around the gangrenous pustule, mentions his having successfully employed a gargle consisting of the spirit of sulphur *per campanam*, largely diluted with water, and the *rob* of elder-berries *. But when a fetid smell proceeds from the mouth, and the gangrene appears to penetrate more deeply, he proposes anointing the parts with a mixture containing an ounce of the honey of roses, and thirty or forty drops of the spirit of sea-salt; and, in this manner, he has observed the progress of the complaint to be quickly arrested. Raullin prefers a mixture composed of rose-water, with a few grains of sal Saturni †. He advises gargling, or tipping the

ulcer several times a-day with it, and thinks that there is no occasion for any other medicine. For in this manner they are said to be diminished, nourished, and healed up, even when other gargles have been employed to no purpose; which is likewise confirmed by the authority of Boucher †. He mentions having always obtained surprising good effects from two ounces of plantain and twenty grains of sal Saturni employed as a gargle. Others propose to themselves similar good effects from employing the *aqua vegeto-mineralis*, or Goulard's extract.

* In Boerh. § 811. † *Des Malad. Occasionées, &c.*
c. xiii. p. 261. ‡ *Journ. de Médec.* vol. 8. p. 556.

417. I find also that Majault *, after Pringle, recommends the volatile alkali in this case as an excellent antiseptic; nor is it a matter of much consequence whether it be derived from the vegetable or mineral kingdom. Majault employed the volatile alkali extracted from horseradish, and composed in the form of a gargle, as follows: *Rec. aqu. commun. unc. vj. spirit. vini unc. ij. spiritus raphani rustican. unc. ij. mellis rosat. unc. j. ℥. m.* He caused the gangrenous parts to be gently washed with this liquor, and its vapour to be constantly inhaled. In this manner, in the course of thirty hours, the gangrene of the tonsils was not only stopped, but also a slight inflam-

mation arising around it, the mortified part was separated, and the patient recovered his perfect health in nine days. He very properly, however, cautions the physician against continuing the use of the volatile alkali after any of the mortified part has fallen off. However, the spirit of the volatile sal ammoniac seems to act more powerfully. The inhaling of the vapour of it, when dropped into warm water, is not only well calculated for curing the gangrene of the tonsils and fauces, but also prevents its spreading to the larynx; nay, if it have begun to descend into the passages of the respiration, it becomes the only remedy upon which we can place any reliance.

* *Journ. de Méd.* T. v. p. 25. *Juillet* 1756.

418. But Meade proposes another method of treatment. Having first drawn blood, and purged the belly with a clyster, he recommends making three or four pretty deep incisions in the gangrenous part of the tonsils, and afterwards anointing them with honey of roses, and next repeatedly washing them with a decoction of barley and figs*. Nor must we rely so much upon the authority of Lieutaud,—who affirms that this practice is pernicious†,—as immediately to reject such a method of treatment as nugatory, or hurtful. Probably, in consequence of being employed too late, it has not produced the desired effect, or it has become hurtful through the fault

of the person who may have performed the scarification ; for I confess that by employing an improper instrument, or by forcing the lancet too deeply in, it might sometimes have proved hurtful. But Meade himself has very properly remarked that these scarifications ought to be employed at the very beginning of the complaint, before the gangrenous matter has been absorbed, or when it has not yet extended to the larynx ; for, after two or three days, the gangrene penetrates so deeply, and interrupts the respiration in such a manner, that the patient's death becomes inevitable. These incisions have been frequently prescribed by myself in the epidemic gangrenous angina, and with advantage. I wish that I had always had an opportunity of employing them in children and infants, who are persuaded with the utmost difficulty to undergo the operation ; for I am well convinced that I should have been able to save the majority of them.

* L. c. cap. 2. *De Morb.* cap. 4. p. 53.

† *Préc. de Méd.* l. 2. p. 521.

419. I have already made mention (408.) of the *putrid angina*, which sometimes supervenes symptomatically in putrid fevers, and in those of a bad disposition, in malignant small-pox, or measles, as well as in other exanthematic diseases. As being a symptom of a primary disease, it requires scarcely any other treatment than what is

adapted to the primary disease. But many of the remedies, both internal and external, which I have already proposed, may be of service in this case also ; particular attention, however, must be paid to the primary disease, from the proper treatment of which the chief part of the cure of the symptoms, and therefore of the angina which depends upon them, is to be expected.

420. With regard to the regimen, it ought to be of that kind which is neither too hot nor too cold ; for the one would favour putrefaction, and the other would oppose the breaking out of the disease upon the surface. It is adviseable, therefore, to steer a middle course, with the view of fulfilling both intentions. The renewal of the air also requires the greatest attention, that the putrid exhalations and vapours may be dissipated. Nor must suffumigations be omitted, as by their means a medicinal and antiseptic property may be imparted to the air, which must necessarily be constantly respired by the patient. Vinegar thrown upon a hot iron-plate affords a very salutary and not unpleasant vapour. Likewise camphor poured into vinegar, by the application of a slow fire is gradually resolved into surprisingly antiseptic vapours. The strength may be supported by weak chicken-broth and the yolks of new-laid eggs. Whey and wine also contribute greatly to the same end. But the patient ought never to swallow any food, drink, or medicine,

unless the mouth or fauces be previously well washed ; otherwise the putred ichor mingled with them would descend into the œsophagus, stomach, and more intimate parts of the system, and occasion contamination.

THE BENIGN ULCEROUS ANGINA.

421. BUT the practitioner must be on his guard against immediately setting down every kind of pustule or ulcer affecting the tonsils and fauces as a gangrenous and malignant angina. Both pustules and ulcers sometimes arise there, which are by no means malignant, and which do not difficultly yield to remedies, nor do they readily become fatal ; as Aretæus himself has recorded. The malignant ulcers differ from these, because they appear broad, hollow, fatty, foul, white, ash, livid, or black coloured, and penetrate more deeply and quickly. Hence Van Swieten very appositely remarks*, that there is a species of angina similar to the gangrenous one, but of a mild disposition, attacking the palate, uvula, and tonsils, which he had frequently seen, and which is easily removed, although these parts be acutely painful. A careful observer in the practice of medicine will pretty frequently have an opportunity of treating this complaint. It is preceded by inconsiderable fever, which is sometimes pretty acute, and quickly disappearing like an ephamera.

A pain then first attacks some part of the fauces. On inspecting the throat some small white spots or pustules appear, which are red and very painful all round : but they are neither very thick, nor are the surrounding parts very much swelled. If they be neglected, however, they spread, corrode, and excoriate the neighbouring parts ; nor are they altogether free from a fetid smell. Nay, melancholy instances are recorded of the violence of the disease having penetrated to the trachea and lungs, thus occasioning the patient's death †.

* L. c. § 811.

† Of this kind does the first species of angina, observed by Ghis prevailing at Cremona epidemically, appear to have been. *Lett. Med.* lett. 2. 1749.

422. This complaint is of frequent occurrence in scorbutic people, and in those with bad-conditioned fluids ; sometimes likewise it occurs epidemically, particularly during the spring-season, and during a moist, warm state of the weather. A particular acrid and subtil matter being extricated from the blood, or passing into it from the *primæ viæ*, or proceeding from the recrementitious parts of the perspiration, irritating the heart and nerves, first rouses a febrile motion, and afterwards is forced by the violence of the fever to the fauces, where it remains, occasioning slight pustules and mild ulcers, accompanied with an inconsiderable degree of inflammation. The

blood being thus purified by means of the metastasis, and no longer irritating the heart and arteries, the fever intirely disappears. In it, therefore, as an acrid humour occasions the disease, it is not proper to rashly let blood, unless the urgency of the pain, and difficulty of swallowing, indicate it. It is proper first to try cooling remedies, revellents, cathartics, fomentations, anodyne and demulcent gargles, and the copious drinking of barley-water. If, notwithstanding the employment of these remedies, the pain, inflammation, and fever do not remit, blood may be drawn, but sparingly and cautiously. We may apply to the pustules, aphthæ, or small ulcers, nearly the same remedies which have already been carefully enumerated (414. et seq.); but if they aggravate the pain, as usually happens on their first application, it may be alleviated with barley-water and milk, or with the juice of the *sempervivum majus*, to which honey, or the syrup of marsh-mallows, may be added. When the ulcers have been cleaned, the more acrid deturgent remedies ought to be gradually omitted, to allow them to heal up*.

* To this species seems to belong the epidemic species described by Regnault (*Journ. de Med.* T. lvii. Juin 1782. p. 528.). For in it the fauces were frequently affected with aphthæ, and sometimes the internal coat of the trachea appeared not to be without them, as anatomical dissection has demonstrated: but that species of the complaint was somewhat more anomalous and pernicious. It did not admit of bleeding.

Sometimes, however, when suffocation was threatened, opening the jugular vein removed the disease. Blisters likewise afforded very great relief to the part affected.

THE ANGINA TRACHEALIS, OR CROUP*.

423. There is another species of angina which is of very frequent occurrence in damp, cold countries, to which the inhabitants of Scotland, who are most liable to it, have given the name of *croup*, *chock*, or *stiffing*. It is supposed to be almost peculiar to infants and children, but erroneously, as it has been observed occasionally to attack adults also; whom, however, it must be confessed to affect less severely, as Ghis observed in the epidemy which prevailed in the year 1747 and 1748 at Cremona †. It attacks children, however, more frequently. On which account, and with respect to the suffocation with which it is attended, and its rapid tendency to death, it approaches so nearly to the *malignant gangrenous angina*, that several authors had considered it as one and the same disease. But that the diagnosis between both may be the more easily established, it will not be improper to give its description. Rejecting the other less proper terms, I have preferred denominating it from the seat which it occupies; adding, however, the English name, in order to distinguish it from

the other species of cynanche from which it in fact differs.

* Synonyms.

The *Suffocatio stridula* of Home, *An Inquiry into the Croup*, Edinb. 1765. The *Croup* of Buchan, *Domest. Medicine*. The *Cynanche stridula* of Wallbom, *Barattelser till Riksfens stander*, an. 1765. The *Angina suffocatoria* of Engstroem, *Barattelser till Riksfens stander vorand Medic. &c.* an. 1767. The *Angina strangulatoria*, & *morbus strangulatorius* of some authors. The *Angina polyposa*, or *membranacea* of Michaelis, *De Angin. Polyp.* Gotting. 1778. The *Alterum anginae epidemicae genus*, an. 1747, 1748, of Ghis, *Lett. Med.* let. 2. Cremon. 1749, May it be the *Angina maligna epidemica* of Malouin? *Mem. de l'Acad. Roy.* 1746.

† Ghis, *Lett. Med.* let. 2. Regnault, *Journ. de Med.* vol. lvii. p. 527. where likewise adults are said to have fallen into this disease.

424. It generally prevails epidemically, sometimes likewise sporadically. But as it occurs most frequently in infants and children, I shall mention in what manner it arises and proceeds in them particularly, for it will easily from thence appear in what manner it attacks adults also. In my description of the complaint I shall follow Michaelis, who has given by far the most accurate history of this complaint, and illustrated it with the most judicious instances of it. Infants and children, he observes, who are about being attacked with the complaint, lose their natural hilarity and propensity for play. Afterwards they become melancholy and peevish, and are hotter than usual.

Their tongue is covered with white mucus, and sometimes is very foul. In a short time they complain of some pain in the trachea, which is generally dull, though sometimes pungent. Frequently the fore-part of the neck, which corresponds with the affected part of the trachea, appears somewhat swelled, and, on being pressed, the patient feels a sense of pain, although not very acute, and the face likewise becomes turgid and red; there is considerable thirst; great drowsiness and headach are present.

* *De Angin. Polypof. p. 10. et seq.*

425. To these incipient symptoms is shortly added a fever, accompanied with a very quick and hard pulse, hoarseness, a short cough, at first always dry, a trickling of blood from the nose, and other catarrhal symptoms. Sometimes sooner, sometimes later, a difficulty of breathing supervenes, which is at first very slight, but afterwards becomes exceedingly severe, threatening suffocation. No manifest cause of the injured respiration and suffocation can be detected; for, on inspecting the fauces, nothing morbid is discoverable, unless that they sometimes appear somewhat shining, or are covered with a tenacious mucus. This difficulty of breathing, which is generally deep, seldom quick, is accompanied with a peculiar indescribable sound, which is very readily recognised by those who have once heard it. If it can be compared to any sound, it will

be found to resemble none more than that which is made by chickens. In some patients that sound accompanies every inspiration; in others it is only heard when they cry, or cough. Besides this difficulty of breathing, the patients are frequently distressed with nausea, or with vomiting itself, by which a great quantity of very tenacious matter is thrown up. Sometimes, however, the vomiting is empty, nothing being brought off. In a good many cases the hands and feet swell; the tonsils scarcely ever, or, if at all, very little.

426. All these symptoms (425.) very rapidly increase to such a degree that the disease, which a few hours before did not seem to require the aid of medicine, now frequently defies every method of cure. For such is the anxiety and difficulty of breathing, that death from suffocation is every moment to be dreaded. In the mean time the deglutition remains uninjured, or, if it ever be affected, it is very slightly. The urine, which was formerly clear and watery, then deposits a white sediment; and the pulse, in which quickness, hardness, and strength were conjoined, becomes weak, very soft, or even intermitting. In the mean time it not unfrequently happens that, in consequence of the cough, not only a very copious, white, caseous, tenacious matter, but also hollow, tubular, membranous concretions, perfectly resem-

bling the figure of the aspera arteria and bronchia, are thrown off. In consequence of which the respiration, in particular, is very much relieved, and almost all the symptoms changed for the better. Nay, if the whole of this glutinous matter, or membranous concretion, or even if great part of it, be coughed up, the patient is immediately snatched from the jaws of death, and recovers. But if the greater part of the glutinous, caseous, or membranous matter be still retained, or, although thrown off, be too quickly regenerated, all the symptoms in a short time are aggravated to such a degree, that the patient, whom a person would have believed to have been rescued from all danger, being again overwhelmed with the violence of the disease, is at length carried off.

427. It is likewise to be remarked, that not unfrequently, all of a sudden, and without any excretion of the obstructing matter, all the symptoms become so much better, that the respiration is rendered freer, or intirely natural, and the infants or children can rise out of bed, and walk about; and that, shortly after, this fallacious remission of the symptoms is succeeded by a fresh paroxysm, frequently so severe that the child, who one or two moments before was amusing himself with his playfellows, or taking food with an excellent appetite, is suddenly cut off. Others, again, experience a slow death, their anxiety increasing,

and their respiration always becoming more difficult, their cough ceasing, and their pulse becoming intermitting and tremulous. But this kind of slow death is of rare occurrence. A symptom almost uniformly characterising the complaint is, that to the very last hour of life the patient retains the perfect use of his senses and reason. The favourable or fatal termination of the disease happens at no fixed period. A great many die upon the third or fourth day, nay, sometimes upon the second; notwithstanding of which the following days are not free of danger; for Halen mentions an instance of the complaint's having proved fatal upon the eighteenth day. A good many are said to have recovered after the third or fourth day; others recover more slowly. Persons more advanced in life experience a more lingering complaint. A boy of twelve years of age is said to have recovered after labouring five weeks under the complaint, in consequence of throwing up a foreign body *. But the tailor mentioned by Tulpius lingered under the complaint much longer.

* *Act. N. C. T. i.*

428. So far does the description of Michaelis go, which was collected both from his own observations as well as from those of others. And as there is a very great difference between it and that which was long ago published by Ghis, who

was among the first, and in Italy, probably, the only person who accurately observed this very fatal disease prevail epidemically in the city of Cremona ; I thought that it would be worth while, and to the honour of the Italian practice of medicine, which is unjustly slighted abroad, to illustrate the history of the complaint already delivered, by adducing his observations, by which we shall be very much assisted, both in the diagnosis and cure of this very shocking and fallacious disease. I shall endeavour to accomplish this in as few words as the author himself has employed, that is, as briefly as possible. The species of angina which, in the year 1747 and 1748, prevailed epidemically at Cremona, was fallacious and deadly, but did not affect the fauces or injure the deglutition. It therefore proved fatal to some thoughtless people, and several children, who were deprived of a proper method of treatment. Unusual thirst, a pale face, a very rough and constant cough, without the usual sound, generally dry ; difficulty of breathing ; heat and pain almost always distressing the larynx ; fever, conjoined with the greatest heat internally, and very little externally ; a small and generally irregular pulse ; great restlessness ; a clangous voice, and sometimes hissing respiration, were symptoms in common to all, which shortly becoming more violent, were joined by a very irregular and intermitting pulse, dry skin,

and coldness of the extremities; the patients could not lie down, or remain at rest in a place, and drew their breath with the utmost difficulty and rapidity, which was accompanied with a shocking rattling sound. For by opening their mouth wide, and drawing back the neck, which was swelled, and bringing the trachea, especially the larynx, as near as possible to the lower jaw, and pushing it outwards with great violence, they performed their respiration; or, which is the same thing, they experienced completely the *respiratio sublimis*, as Hippocrates called it; and in this miserable condition some were suffocated on the third or fourth day, others upon the fifth, and some even on the second or seventh day, from the beginning of the complaint.

429. But the cough is said to have been *generally dry*; because a copious spitting, which occurred in some, was not brought off from the trachea or larynx, but from the throat itself. For a great quantity of lymph, expressed from the irritated salivary glands and mucous follicles, was collected there. But if ever any thing was thrown off by means of the cough, from the respiratory passages, it was like a membrane, extremely similar to those gelatinous concretions which are found in the præcordia after death, under the name of the *pleuritic coat*, or *pseudo-polypus*. A girl of six years of age, the day be-

fore her death, in consequence of a suffocating cough, threw off from the larynx a considerable piece of white solid matter, which exactly resembled the form and hollow of the whole trachea and bronchia. In fact, if any one escaped from so great a danger, the crisis took place either by a copious spitting of lymph tinged with blood, or by sweat, or urine, and by a metastasis to the lungs : which, although in the other species it be generally mortal, in this one, if it survived the seventh day, terminated in a lingering, but salutary suppuration. For the pus being gradually drawn off by means of the cough, and the abscess being thus evacuated, the patient was saved and recovered. Enough, however, concerning these symptoms which occurred in the epidemic of Cremona.

430. It remains for me, in order to complete the history of the disease, and to properly ascertain its nature, to briefly shew what the appearances on dissection are. The external appearance of the body is such as is observed in those which have suffered strangulation: the face is generally livid and swelled; the eyes prominent and turgid; the veins of the neck are found distended with blood, which also occasions a swelling and redness in the fore-part of the neck. The fauces are contaminated with no taint or inflammation*, excepting that sometimes the glands at the root of the tongue become turgid, and

their excretory ducts open too wide †. Likewise a great quantity of mucus about the glottis, obstructing every thing, is generally found ‡. The trachea immediately under the larynx is sometimes found inflamed all over, even to the extremity of the bronchia ||. Sometimes it is found free of any mark of inflammation §. But the tubular membrane, or membranous concretion, lining the internal surface of the trachea, is at one time found to be very long, passing from the larynx itself to the last divisions of the bronchia, and when drawn out, it intirely resembles the figure of the containing part; sometimes, and indeed more frequently, it is found lying under the larynx only, and much shorter; in other cases it occupies a small space in the arteria aspera ¶; in some cases, being formed in the middle of the trachea, it resembles a part of a small white concretion, very like what has been coughed up **; sometimes it is very thin; sometimes it is so thick as to obstruct the whole cavity; sometimes it is soft and easily torn; or, on the contrary, very tenacious and glutinous. It is generally of a whitish and shining colour, sometimes variegated with red spots, and sometimes it is of an ash or brown colour. It no where appears to adhere to the internal coat of the trachea; so that it cannot be considered as its inner coat, which is found intire beneath. Authors are not agreed as to its structure. Some affirm that it is composed of

blood-vessels, others that it is composed of longitudinal or striated fibres. But if it be properly examined, it will be pronounced to be an inorganic substance, composed of the mucous and lymphatic fluids, not unlike the polypous concretions which sometimes are thrown up by patients labouring under peripneumony, and because it intirely excludes the nature of a true membrane, which is quite soluble in soap and water. Not unfrequently that membranous concretion is accompanied with water and a frothy fluid; nay, with water itself. Sometimes likewise the glands which are placed about the bronchia, at their entrance into the lungs, are found to be very numerous, and much indurated. In many patients, the lungs are perfectly sound; in others they are found, to be sure, but adhere to the pleura, and are somewhat turgid; in others they are suffused with much redness, and filled with a great deal of blood; or they are of a dark brown colour, and marked all over with black spots ††; sometimes they are so red as to appear inflamed even externally, their colour being very red, like that of erysipelas; nor do the pleura and diaphragm in some parts remain free from that inflammation, namely, in those parts which correspond with the more severely inflamed part of the lungs, or their adhesion ††. Nor is it a rare occurrence for the lungs to be full of a white matter, with which all the branches of the bronchia are obstructed. On removing this

matter, some blood is easily forced out by pressure. In some patients likewise, they are found full of pus, or inflated with a quantity of air |||. The heart, pericardium, and mediastinum, and thymus, are generally perfectly sound, excepting that the vena cava and right cavities frequently abound with a great deal of black blood, or pseudopolypi; while the left cavities are empty §§. And there is sometimes a greater or lesser effusion of water in one or both cavities of the thorax ¶¶. In the abdomen, the appearances are all natural. In the head, both the cutaneous vessels, and those of the pia mater, and choroid plexus, are unusually varicose and dilated, as they are found to be in bodies which have been strangled.

* Ghif. l. c.	Michael. l. c. p. 10. to 22.	† Michael. <i>ib.</i>
‡ Michael. l. c.	Ghif. l. c.	Michael. l. c.
§ Michael. l. c.	¶ <i>Id. ib.</i>	
** Ghif. l. c.	†† Michael. l. c.	‡‡ Ghif. l. c.
Michael. l. c.	§§ Ghif. l. c.	¶¶ Michael. l. c.

431. From the observations already made in the history of the disease, and from the appearances upon dissection, of which mention has already been made, we may sufficiently collect that the seat of the disease is confined to the aspera arteria; and therefore, that the angina trachealis is sometimes phlegmonic, sometimes, and probably more frequently, erysipelatous, sometimes only cattarrhal, the principal symptoms of which

are fever, pain or heat in the trachea itself, a cough, at first dry, and without the usual sound; a hoarse, shrill, or clangous voice; a sound attending the inspiration, like that which chickens make; violent elevation of the larynx, and its readily passing into a fatal suffocation; and lastly, a symptom which is peculiar to the complaint, the frequent rejection by cough of a lymphatic concretion, obstructing the trachea and bronchia, under the appearance of a tubular membrane. But it is more probable that this is a membranous concretion, partly from the copious and dense mucus which the glands and follicles of the trachea discharge, partly that it is composed of the lymphatic fluid exhaled by the extremities of the arteries, or exuded from their inorganic passages having been coagulated; and that it assumes the form of the cavities and canals in which it is collected *.

* Ghis.

432. It likewise appears evident that its nature is not uniform, but various, as the temperament, habit of body, age, sex, time of the year, weather, and other predisposing causes vary; and that there is not one pathognomic symptom by which the complaint can be distinguished, but that its diagnosis must rest upon the combination of the principal symptoms *. I cannot deny, however, that this species of angina may be readily confounded with other kindred diseases,

namely, with the pure inflammatory angina trachealis (375. 376.), with the catarrhal or ferous species (309.), with that which arises from different things falling into the larynx (371.), with the suffocative catarrh of Etmuller, and with the convulsive cough in Italy, commonly called *Coqueluche*, &c. But each of these affections are distinguished by particular marks. The pure inflammatory angina trachealis is not so deceptive, but manifestly more acute, and accompanied with symptoms of actual inflammation. It is accompanied with a more acrid and troublesome pain in the larynx and trachea; the inspiration is not accompanied with any peculiar hissing, such as we have mentioned, nor with a sound like that which chickens make; nor does it reject by cough the membranous and tubular concretions, already mentioned †.

* Michael. l. c. † *Id. ib.* p. 128.

433. This species of angina is likewise distinguished from the catarrhal or ferous one, because in the latter the fauces and lymphatic glands swell; the voice becomes hoarse, not stridulous; the cough is without the usual sound; the respiration, if it suffer any injury, never increases to such a degree as to threaten suffocation; and, lastly, no membranous or tubular substance is discharged. This species of the complaint is distinguished from that caused by foreign bodies falling into the *aspera arteria*, merely by the

anamnesis, or retrospect of preceding circumstances. It differs also from the convulsive asthma, because the latter commences immediately with a most severe attack, while the former begins with small and uncertain attacks; because the peculiar hissing, change of voice, and stridulous sound, are absent; no pain is felt in the aspera arteria; the accession returns at stated intervals; the urine is voided thin, watery, and frequently; the pulse is small, contracted, spasmodic, and not febrile; nor is any membranous substance discharged. It is not difficult to distinguish it by nearly similar marks from the suffocating catarrh of Ettmuller, and likewise from the convulsive cough *.

* Michael. l. c. p. 122. 123. 126.

434. A person is more apt to be deceived by this angina trachealis inducing strangulation, while in the manner of its occasioning suffocation it in some degree resembles the malignant gangrenous angina, when it has gone the length of the larynx. But, upon comparing the description of each, all danger of committing an error will vanish. Let the practitioner, first of all, attend to the symptoms of putrefaction in the malignant gangrenous angina, the very foul smell of the mouth, the nausea, vomiting, the stools, and very fetid sweats, the purple redness of the throat, the small pustules which generally break out upon the fauces on the first and second day,

or the white, mucous, cineritious, and livid spots quickly covering the whole tonsils, and spreading wide, and the eschars arising from thence gradually falling off, and leaving beneath them phagedenic ulcers. For from these marks it will appear that there is a very wide distinction between them. Let him, moreover, remark that in the gangrenous angina the deglutition is affected more than the respiration; that the trachea is affected with no pain, and that the nature of the voice is different; that delirium frequently supervenes; and that those tubular membranes are not discharged; and if ever some pieces of membranes are coughed up in the gangrenous or ulcerous angina, as sometimes happens, that these are really parts of membranes, although not tubular, but torn from the fauces and pustules, and which are by no means soluble in soap and water*.

* *Id.* l. c. p. 113.

THE CURE.

435. As this disease, which is so fallacious in its nature, and so rapid in its tendency, is followed by sudden and almost inevitable suffocation, which terminates the patient's existence in a miserable manner, and spares very few, if in any case, assuredly in this, the greatest dispatch is necessary to avert as far as possible the danger which is threatened. If, therefore, there be any hope,

it depends intirely upon the drawing of blood at the beginning of the disease, which frequently; particularly when drawn from the arm, alone completely removes the complaint; and it may be repeated, even in children, as often as the pulse and other symptoms indicating it urge its employment*. Leeches applied to the neck, and scarifications, advantageously diminish the quantity of the blood, and prove less detrimental to the strength. In the epidemy which prevailed at Cremona, as we are informed by Ghis †, no one escaped unless by having recourse immediately to copious and repeated bleeding, and a scarifying cupping-glass afterwards applied above the larynx, together with pediluvia, and small but frequent draughts of some tepid pectoral water; and a linctus of fresh oil of almonds, expressed without fire, by which the back-part of the aspera arteria is cherished, moistened, and softened. By this method of treatment he observed not only some boys, but likewise several adults, to whom he had been called at the beginning of the disease, restored to health. Of these some recovered shortly after coughing up a great deal of lymphatic matter tinged with blood; others recovered in consequence of universal sweats, and a great discharge of urine; others, again, in consequence of a metastasis taking place to the lungs, which terminated in a slow but salutary and laud-

able suppuration, such as Hippocrates has mentioned ‡.

* Michael. l. c. p. 194. 195.
sect. v. 10.

† L. c.

‡ *Aphor.*

436. At the beginning of the disease anodynes and diaphoretics are recommended as removing its cause. Hence opium, camphor, and tartar-emetic, are prescribed in small and divided doses, after the manner of an alterative *; but the *potus saponaceus antiphlogisticus*, nitre, oxymel, and injections, are supposed to be much better calculated for the purpose. Nor are cathartics to be omitted, if the gastric and ferous colluvies require being drawn off; under which head comes magnesia alba, with sugar, the pulp of cassia, lenitive electuary, and manna dissolved in whey. The employment of emetics is not so safe; and if it ever appear proper to excite vomiting, it ought to be done with the utmost caution, otherwise it might accelerate the suffocation †. Blisters applied about the neck and its sides, or to the fore, or even hind-part of it, have their advocates ‡. It is likewise asserted by some that these parts may be advantageously anointed with oil and spirit of sal ammoniac ||. Such are the remedies proper in the first stage of the complaint. In the second stage, however, when there is both reason to apprehend suffocation coming on, and when the air-passages are also obstructed with a great quan-

tity of gluten and mucous fluid, we must speedily have recourse to expectorant and inciding remedies. Among these the chief rank is held by oxymel of squills, by the *sulphur antimonii auratum* of the third precipitation, by the gum ammoniac, by the warm vapours of vinegar being inhaled, and the like. These remedies, however, must not be employed indiscriminately, but a judicious selection of them ought to be made. If symptoms of real or erysipelatous inflammation be rather present, it will be safer to employ milder and blander medicines; while the symptoms of a catarrhal and phlegmatic affection require somewhat more decided practice, and the employment of more acrid remedies. Some even in this case do not hesitate to propose the exciting of vomiting. But prudent physicians are aware of the great danger of employing emetics when such immediate suffocation is apprehended§. In the last extremity, all other remedies proving unavailing, tracheotomy alone affords some hope, although it is not approved of by all ¶ **.

* Michael. l. c. p. 197. † *Id. ib.* p. 203. ‡ *Ib.* p. 207. || *Ib.* p. *ead.* § *Id.* p. 210. ¶ *Ib.* p. 217. 220.

** An instance of tracheotomy having been successfully performed in a boy threatened with suffocation, was communicated to me in a letter which I received from Locatelli, a physician of great expectations, then residing in London, who observed it executed with the greatest dexterity by Mr Andrée, a celebrated surgeon of that city. It was performed in the fol-

lowing manner : He first divided the integuments by making a longitudinal incision from the thyroid gland towards the top of the sternum, about three inches long. Having next skilfully laid bare the trachea, he transversely divided the connecting membrane between its second and third ring, and made a similar incision between the fourth and fifth rings, so that two rings were left between each transverse incision. From the fore-part of these, by making two other lateral incisions, he took out a square piece. By which means a sufficient opening was made, both for inspiring and expiring the air, and for the expulsion of the membranous concretion which threatened suffocation. From this opening immediately issued a considerable quantity of pus, but no part of the membranous concretion. Two days afterwards some portion of it came out through this artificial opening ; so that what remained within was easily extracted by the hand.

THE CONVULSIVE ANGINA OF BOERHAAVE *.

437. THIS is the constriction of the fauces or larynx and pharynx, occasioned by a spasm of them. Hence it is likewise named *spasmodic* ; or, because it commonly attacks women and hypochondriacal men, it is likewise denominated *hysterical*, or *hypochondriacal*.

438. It is known by the sense of constriction, or that of a globe or other body, sometimes oblong and cylindrical, sticking in the fauces ; by the inflation or rigid tension of the neighbouring parts, occasionally accompanied with some pain ; by the difficulty of breathing or swallowing co-

* *De Cogn. et Cūr. Morb.* § dcccxviii.

ming and going at intervals ; by the interruption of the voice, or aphonia ; by a small, hard, weak, hidden, slow, and by no means febrile pulse ; by the chilliness of the external parts ; sometimes by trembling ; by borborygmi, and pains of the belly or stomach ; by pale urine, voided frequently and copiously ; by yawning, stretching, and other symptoms of convulsive affections. It is preceded by those causes which immediately irritate the nerves or fibres going to the larynx and pharynx, or the origin of the nerves or their branches in the lower part of the abdomen, as the inspiring of the exhalations and vapours of sulphur, nitre, and vitriol ; the swallowing or eating of acrid things ; the matter of herpes, arthritis, and itch being forced in ; morbid conditions of the uterus and abdominal viscera, especially of the stomach ; the diminution or suppression of the menses ; hypochondriasis ; the passions of the mind, particularly grief, or long-suppressed anger.

439. This disease is generally free of danger, unless it arises from some morbid affection which of itself is very severe. But it proves distressing to the patients in consequence of its duration and obstinacy, and frequently recurs after a short interval, on any slight exciting cause being applied. The cure ought to vary according to the variety of the evident causes, and it may be obtained by employing those remedies which I have elsewhere

recommended in the cure of the convulsive affections. Hence sometimes pure open air, together with oily and demulcent remedies, sometimes cathartics, sometimes bleeding, sometimes antihysterical remedies, sometimes purifiers and diaphoretics, are adapted to the cure. Generally when there is a derangement of the nerves, and a hysterical affection, strong-smelling things are applied with advantage to the nostrils, dry cupping-glasses to the legs and thighs, and the feet and hands are immersed in warm water; while the belly is relaxed by means of bland injections. A young woman of sensible habit, who received no relief from antihysterical remedies, after having been incapable of swallowing any thing for forty-eight hours, was immediately cured by Van Swieten, by means of a cupping-glass, without scarification, being applied to the back-part of the neck *. A convulsive angina, which depended upon indigestion of the *primæ viæ*, was relieved by means of vomiting and purging, which otherwise ought not to be readily administered †. When other remedies prove of no service, an epispastic or vesicatory applied to the occiput seldom fails of producing the desired effect. Tozzetti was repeatedly very successful in removing this disease, when it occurred in women of a very exquisite habit, by observing the following plan ‡: He first caused blood to be drawn from a vein in

the foot, after which he applied cupping-glasses, with scarification, to the scapulæ. Lastly, when the complaint still continued obstinate, he raised large blisters in both arms, or in both calves, by means of cantharides. It is surprising how quickly by these means the convulsive angina is overcome.

* In Boerhaave, § 818.

† *Edinb. Med. Essays*, vol. i.

‡ *Observ. Med.* p. 113. *et seq.*

THE PARALYTIC ANGINA.

440. IF the muscles subservient to the motions of the tongue, pharynx, and œsophagus be attacked with paralysis, the power of swallowing becomes affected, or is intirely lost. This complaint is named the *paralytic angina*. It seldom happens, according to Van Swieten, that in this complaint the respiration suffers any injury, because the muscles subservient to respiration seem to belong rather to the thorax than to the fauces, of which angina is the peculiar disease; unless the *musculi scaleni* be affected at the same time. This species of angina is consequent to hemiplegia, paraplegia, apoplexy, and other affections inducing the paralysis of particular parts.

441. In it the meat, drink, and saliva being forced back, flow out again by the nostrils or mouth, not without endangering suffocation. There is no sense of constriction in the fauces,

no interior or exterior swelling, no fever. Nor can the patients take any thing into the fauces, or they do so with difficulty, and slowly, according to the greater or lesser degree of paralysis. Solids, however, are less difficultly swallowed than liquids. Persons in the supine posture are more distressed. If a small wax-taper, or a piece of flexible whalebone, be introduced into the fauces, finding no obstacle, it easily passes through the œsophagus, and might be freely thrust down all the way to the stomach.

442. It is likewise perfectly clear that this complaint proceeds from luxation of the vertebræ of the neck. But in that case, if the luxation be perfect, especially in adults, a fatal paraplegia is at the same time present. The luxation ought therefore to be imperfect, and indeed internally, before a paralytic angina can be said to arise. It scarcely takes place, however, as Van Swieten has very justly remarked, unless in the upper vertebræ of the neck, and in young people with delicate habits, in whom these vertebræ are more cartilaginous, and connected together by weaker ligaments *. This luxation has not only been mentioned by Hippocrates in his *Aphorisms* †, where he speaks of the diseases of young people, but also in his *Prognostics*, where he says: “In persons labouring under angina, the vertebræ of the neck inclined inwards, in

some cases more, in others less; and there was an evident cavity formed in the neck; and when touched at this part it felt painful ‡." And although that disease occurs seldom, Van Swieten had once an opportunity of seeing it in a child ten months old, whose head was inclined back, while the throat was prominent, and a manifest cavity appeared in the breast. The child could not swallow any thing. The complaint had taken place at this time, after violent convulsions, in consequence of which the vertebræ of the neck were easily removed from their place in so delicate a frame, as we frequently observe luxations of the bones occurring even in adults from this cause.

* Sect. 818. *citat.* † Sect. 3. aph. 26. ‡ L. 1.

443. Generally those who are affected with the paralytic angina die in consequence of the gradual wasting of the body. Sometimes, however, in process of time, and by the joint operation of nature and art, they are restored to health. We judge of the degree of hope or danger from the cause by which the paralysis is occasioned. The cure, if it admit of any, is to be attempted by those remedies by which I have shewn that the paralysis of other parts is to be treated. But because the deglutition is impeded, or very much injured, so that the patients can neither eat nor drink, they ought to be nourished either by means of a tube introduced into the stomach, through which

liquid food is conveyed, or by nourishing injections, as they are called, or by fomentations applied externally to the body, consisting of nutritious fluids, as milk, wine, or soup ; for the vessels are every where open, which may absorb something, and by means of the lymphatic veins supply the blood. The bath also is very well adapted to this purpose. When a perfect luxation of the vertebræ of the neck takes place, in which the spinal marrow is not only pressed, but intimately deranged, and at the same time a great degree of inflammation and fever are present, Aegineta has informed us that no hopes of a cure remain *. But in the imperfect and less severe species of the complaint Aetius advises us to attempt the cure by fixing a cupping-glass about the first vertebræ of the neck, and frequently pulling it, with the view of replacing the vertebræ in their original situation †. With the same view, when a slow luxation of the vertebræ and protrusion of them inwards has taken place, and no inflammation is present, it may be proper, by applying the hand to the chin and back-part of the head, or by means of a proper bandage, to raise the patient every day, and suspend him for a while, that by means of the weight of the body the injury suffered by the spine may be corrected.

* L. 3. c. 27.

† *Tetrab.* 2. serm. 4. c. 47.

THE ANGINA OF VALSALVA,—OR THAT FROM LUXATION OF THE OS HYOIDES*.

444. THE luxation of the os hyoides, and its impeding deglutition, was mentioned first of all by Valsalva †, and afterwards by Molinell ‡, of whom the former has published one, the latter two instances of the disease, that no doubt about it might remain. The os hyoides, therefore, is luxated, not like the humerus, or phalanges of the fingers, or other bones, the articulations of which are received in some cavity, from which, when they are luxated, they fall out, but in the same manner as bones connected by cartilages, as the bones of the pubes, coccyx, and nose. For the coccyx is said by surgeons to be luxated when it is so distorted that it requires the assistance of the hand to reduce it to its place. The same thing happens to the os hyoides, and in particular to its cartilages.

* Synonyms.

The *Dysphagia Valsalviana* of Sauvages, *Nosol.* cl. vii. n. xvii. I have supposed that that complaint is to be referred to angina, because the impediment is in the fauces, and not situate lower down. For those difficulties of swallowing, the cause of which is distantly situate from the fauces, I suppose merely to belong to *dysphagia*, as I shew in the chapter concerning the latter affection.

† *Tract. de Aur. Human.* c. 2. n. 20.

‡ *Comm. Instit. Scient. et Art. Acad. Bonon.* T. v. P. ii. p. 1.

445. The os hyoides and its appendages are luxated either internally or externally. In whatever manner the horns of this bone or its appendages are distracted or displaced, it necessarily follows that the pharynx also, which is joined with the os hyoides by means of the hyopharyngeus muscle, must be distracted, and, when thus distracted, must injure and retard the deglutition. If any violence, therefore, be applied either externally or internally to the os hyoides, it will be very apt to distort it, or some parts of it, and therefore will luxate it. Thus a thick hard lump of meat, or any thing similar, taken into the fauces and œsophagus, and swallowed, must necessarily force that bone or its cartilaginous appendages outwards, which will be another kind of luxation peculiar to the os hyoides. On the other hand, the violent introduction of the hand into the throat, or an external blow or pressure upon it, will bend the same bone or its cartilages inwards, and move them out of their natural situation; which will be another species of luxation to which these parts are subject.

446. When that happens not a drop or bit of any thing can be swallowed. Sometimes, likewise, violent and frequent efforts to swallow take place, such as a person would experience who had a bone sticking in his throat; and the distress of this is sometimes so great as to give rise to an universal, copious, and cold sweat, and to occa-

sion a small, weak pulse. The respiration, however, and faculty of speech, are but little affected. The larynx alone appears displaced and deranged. Likewise some swelling is observable on one or other side, or between the sterno-mastoideus muscle, and in the part where the elevation is a pain is felt. If to these symptoms be added the absence of the marks peculiar to the other species of angina, the more certain will be our judgement concerning the luxation of the os hyoides, and the difficulty of swallowing occasioned by it.

447. The case of Valsalva, to which I have already alluded, was as follows. “ A woman in the town of Bologna, who had swallowed a mouthful of insufficiently-chewed meat, persuaded her friends that she was distressed with the lump still sticking in her throat, to remove which she tried various remedies, both by the hand and afforded by medicines, but to no purpose. Three days had elapsed from the time when she could swallow any meat or drink, at which time I was called in. On weighing every particular, as I suspected that a luxation of the os hyoides had taken place in some of the cartilaginous appendages, I handled the part as my knowledge of the anatomy of it directed, and immediately, in consequence of handling it once or twice, every thing was restored to its proper state ; inasmuch that the woman, who had been just despaired of,

was immediately enabled to swallow soup and food without any inconvenience." So far Val-salva goes. This passage affords an instance of luxation of the os hyoides being induced by the application of an internal cause. The cases of this kind of luxation mentioned by Molinell were caused by external violence. The first of them is as follows : " When a surgeon, of about twenty-five years of age, of a slender habit of body, was attempting to wrest something from the hands of a stouter man, the other applied his hand to the surgeon's neck, and in their mutual struggle pressed it violently at the right side of its fore-part. After this the surgeon could swallow nothing, either solid or liquid. An hour afterwards he applied to me for assistance. For the difficulty of swallowing, which I have just now mentioned, still continued, accompanied with the most violent and constant efforts to swallow, notwithstanding that he took nothing into the mouth. Though otherwise a young man of strong nerves, he was so overpowered by his situation, that he became bedewed all over with a copious cold sweat, and his pulse sunk very low ; nor did he suppose that he could live much longer unless the constriction at his throat remitted. But I should not have pronounced his speech and respiration to be much affected. The larynx appeared somewhat deformed, and deranged. Some swelling likewise appeared between it and the right sterno-mastoideus muscle ;

in which part, on its being touched, considerable pain was felt *.” He mentions the other case, in the following words: “I was consulted by a man in the hospital, fifty-two years of age, and of a middling stature and habit, who had received a blow upon the right and upper part of the fore-side of the neck, from a person in a rage, who held fast a stone in his hand. A great difficulty of swallowing succeeded to the pressure, as in the case of the young man already mentioned, but not so great anxiety. As the pain did not remit at all for at least three hours afterwards, he came to the hospital †.” He immediately restored both patients by employing the easy method of cure, which I shall immediately mention, out of the same author’s works. I myself likewise made trial of the same kind of treatment in a woman who for twenty hours had not been able to swallow any thing, and could scarcely speak. For besides the difficulty of swallowing, of which she complained, she had lost the power of speech to a considerable degree. Her throat had been compressed by a person pressing his hand upon it violently. Immediately calling to recollection the observations of Valsalva and Molinell, I relieved her of her distress in a few minutes.

* L. c. p. 4. † *Ib.* p. 6.

448. The cure is performed in the following manner: The head being held by an attendant, the fore-finger of the right hand, if the luxation

incline to the right, or that of the left-hand, if it incline to the left, is thrust down the throat, between the tonsil and root of the tongue, upon the side towards which the luxation seems to project, or in all directions, if the seat of the part affected be not sufficiently ascertained. At the same time the fore and middle finger of the left hand, in the first-mentioned case, or those of the right, in the other, are applied transversely at the part which corresponds with the seat of the os hyoides. By means of the fore-finger introduced into the throat, the os hyoides is to be gently moved forward, and bent length-ways, either anteriorly or posteriorly, according as the luxation may have happened towards the outside or inside, while the fingers which are applied to the neck externally regulate the degree of the pressure. And that may be sometimes repeated twice or thrice, until the power of swallowing be completely restored; which generally happens in a moment's time. But if the luxation have already occasioned inflammation, the latter must be discussed, in order to facilitate the replacing of the bone.

OTHER SPECIES OF ANGINA.

449. To the species of the complaint already mentioned might be added, the angina proceeding from the poison of a mad dog, or other animals, from the seed of the night-shade, from want, from

paralyfis supervening on severe chronic diseases, and, lastly, from any thing which has been swallowed sticking about the fauces*. Of which, however, some may be conveniently referred to the *convulsive* or *paralytic* angina, or to those diseases the cure of which is to be intrusted to surgery. It is likewise the province of surgeons to treat those species of angina which arise from excrescences, fungi, warts, bones, or calculi formed in the pharynx or œsophagus, from swelling of the thyroid gland, from enlargement and induration of the thymus, from abscesses, from sarcoma, from a polypus, from a scirrhus, and similar causes occasioning difficulty of the deglutition or respiration; although several of these will perhaps be more properly treated of when I come to speak of *dysphagia*.

* Foreign bodies which have fallen into the throat, and stick there, if they can be inspected, may be extracted by means of a small forceps, or proper crooked instrument, or they may be pushed down into the stomach by a piece of fine whalebone, or by a fine wax-taper, or the passages may be so lubricated by oily, fatty, and mucilaginous things, swallowed gradually, that they may pass downwards. Thorns, or other sharp-pointed bodies sticking in the throat, if they can neither be extracted nor forced down, induce inflammation, and require bleeding; and, on suppuration supervening, they either pass down, or are discharged upwards. Instances have occurred of the rejection of such bodies in consequence of vomiting being excited. But if they be sharp-pointed, and stick in the throat, there is a risk of their being forced in still deeper by vomiting. It is attended with greater difficulty when such bo-

lies enter into the trachea or bronchia. For in that case they either occasion immediate death by stopping the breath, or induce lingering pulmonary affections. It very seldom happens that they are discharged by coughing, and pass through the mouth. I saw a girl of ten or twelve years of age, of a slender habit of body, one of whose fore-grinders, after being pulled by a surgeon, unluckily slipping from the forceps, fell into the fauces, and forced its way into the glottis. She was just on the point of being suffocated. A few hours afterwards, during which she had been struggling with death, the tooth having passed the straitening of the larynx, and descending deeper into the trachea, she began to feel herself easier, being only distressed with a very troublesome cough, hissing sound, and constant ster-tor. I advised the patient occasionally to take a spoonful of an oily linctus, and frequently to drink a tepid, emollient decoction, and twice a-day, at least, to inhale the vapour of warm water. I likewise left directions, that if any thing should happen, as great pain, spitting of blood, fever, or more violent coughing, blood should immediately be drawn; which in fact it became necessary to do once a few days after, on account of a kind of pleuritic pain and fever which arose, accompanied with a rougher cough, and an expectoration tinged with blood. But, in consequence of this regimen being continued, and the passages becoming relaxed, one morning after the girl had got out of bed, being seized with the cough, as usual, but uncommonly violent, she felt something rising up to the larynx, and told her mother that the tooth would immediately make its appearance. The truth of which was justified by the event. For shortly afterwards, having discharged the tooth, she was completely freed from the cough and rattling in the throat. It is proper, however, to observe, that on inspecting and handling the fauces, nothing foreign was discovered in them, nor was any pain felt. Many eminent physicians and surgeons, on making the experiment, have discovered this. The cough was never absent, frequently a difficulty of breathing supervened, and, which is particularly worthy of notice, during the day-time, the hissing

and rattling, while she breathed, not unfrequently ceased after the first days of the complaint, probably in consequence of the tooth passing lower down while she stood in the erect posture; but they invariably returned whenever she went to bed and lay in the horizontal posture, the tooth, as it would appear, then getting higher up. This fortunate event did not take place until six weeks after the accident had happened; and thus, by the joint aid of nature and medicine, was the patient rescued from her perilous situation.



END OF THE FOURTH VOLUME.

J. PILLANS & SONS, PRINTERS,
EDINBURGH.

